19 inch TFT WXGA LCD Colour Monitor

Chassis: HUDSON8

Service
Service
Service

190S8FB/93
190S8FB/69
190S8FB/75
190S8FB/97190S
190V8FB/93

ENERGY STAR

Service Manual

Horizontal frequencies
30 - 83 kHz

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SAFETY NOTICE

ANY PERSON ATTEMPTING TO SER VICE THIS CHASSIS MUST F AMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSAR Y SAFETY PRECAUTIONS TO BE USED WHEN SER VICING ELECTRONIC EQUIPMENT CONT AINING HIGH VOL TAGES.

CAUTION: USE A SEP ARA TE ISOLA TION TRANSFORMER FOR THIS UNIT WHEN SER VICING.

REFER TO BACK COVER FOR IMPOR TANT SAFETY GUIDELINES

飛利浦

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Important Safety Notice

Proper service and repair is important to the safe, reliable operation of all Philips Consumer Electronics Company equipment. The service procedures recommended by Philips and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Philips could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Philips has not undertaken any such broad evaluation. Accordingly, who uses a service procedure or tool which is not recommended by Philips must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

** Hereafter throughout this manual, Philips Consumer Electronics Company will be referred to as Philips. **

FOR PRODUCTS CONTAINING LASER :

DANGER - Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION - The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

WARNING

Critical components having special safety characteristics are identified with a by the Ref. No. in the parts list and enclosed within a broken line.

(where several critical components are grouped in one area) along with the safety symbol on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from Philips. Philips assumes no liability, express or implied, arising out of any unauthorized modification of design.

Servicer assumes all liability.

Take care during handling the LCD module with backlight unit

- Must mount the module using mounting holes arranged in four corners.
- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
- Make certain that treatment body are grounded through wrist band.
- Do not leave the module in high temperature and in areas of high humidity for a long time.
- Avoid contact with water as it may as hort circuit within the module.
- If the surface of panel become dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

LCD panel

Type NR. : LM190E08
Outside dimensions : 396.0(H) x 324.0(V) x 15.0(D) mm(Typ.)
Pitch (mm) : 0.098*RGB(H)mm x 0.294(V)mm
Color pixel arrangement : RGB vertical stripes
Display surface : Hard coating (3H), Anti-glare treatment of the front polarizer
Color depth : 16.7M colors
Backlight : CCFL edge light system
Active area(WxH) : 376.32 (H) x 301.06 (V) mm
View angle (CR>10) : R/L 160(Typ.), U/D 160(Typ.)
Contrast ratio : 800 : 1 (Typ) / 500 : 1(min)
White luminance : 300 cd/m2 (typ.), 250 cd/ m2 (min.)
Response time : 5 ms(Typ, on/off)

Scanning frequencies

Hor. : 30 ~ 83 KHz
Ver. : 56 - 76Hz
Video dot rate : <140 MHz
Power input : +5.0 V
Power consumption : Total 23.95 Watt(Typ.), (3.35 W@VLCD , 20.6 W@[Lamp=7.5mA])
Ambient temperature : 25 ± 2°C

Power input connection

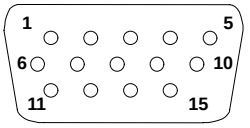
Power cord length : 1500 +/- 50 mm
Power cord type : 3 leads power cord with protective earth plug.

Power management

The monitor must comply with the Microsoft On Now specification, with two power management states, as defined by the VESA DPMS document. The monitor must appropriately display the DPMS state.

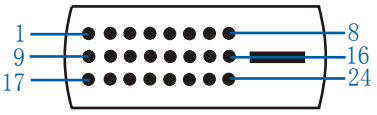
Mode	HSYNC	VSYNC	Video	Pwr-cons.	Indication	Rec. time
Power-On	On	On	active	< 40W(max.)	Green LED	--
Off	Off	Off	blanked	< 1 W	Amber LED	< 3 s
DC Power Off			N/A	< 1 W	LED Off	

Note-1: The pin assignment of 15-pin D-sub connector is as below,



Pin	Signal Assignment	Pin	Signal Assignment
1	Red video	9	PC5V (+5 volt
2	Green video	10	Sync Ground
3	Blue video	11	Ground
4	Ground	12	SDA
5	Cable	13	H-Sync (or H+V)
6	Red Ground	14	V-sync
7	Green Ground	15	SCL
8	Blue Ground		

Note-2: The pin assignment of 24-pin DVI-D connector is as below,



Pin	Signal Assignment	Pin	Signal Assignment
1	TMDS RX2-	13	Floating
2	TMDS RX2+	14	+5V Power
3	TMDS Ground	15	Ground
4	Floating	16	Hot Plug Detect
5	Floating	17	TMDS RX0-
6	DDC Clock	18	TMDS RX0+
7	DDC Data	19	TMDS Ground
8	Floating	20	Floating
9	TMDS RX1-	21	Floating
10	TMDS RX1+	22	TMDS Ground
11	TMDS Ground	23	TMDS Clock+
12	Floating	24	TMDS Clock-

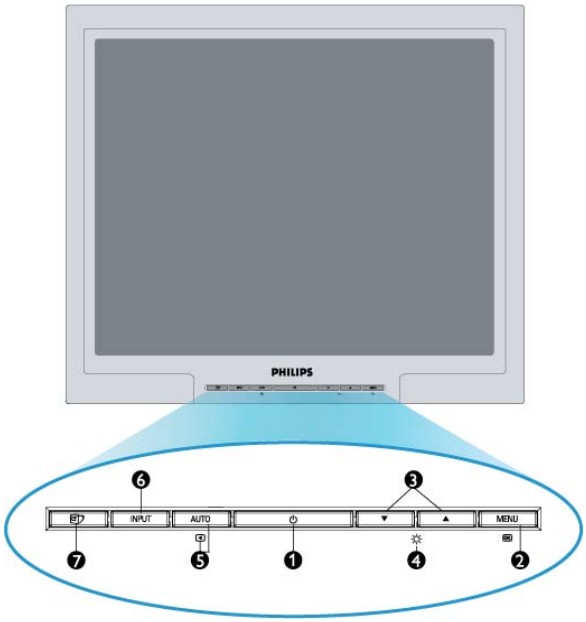
Susceptibility of display to external environment

Operating
- Temperature : 0 to 40 degree C
- Humidity : 80% max
- Altitude : 0-3658m
- Air pressure : 600-1100 mBAR

Storage
- Temperature : -20 to 60 degree C
- Humidity : 95% max
- Altitude : 0-12192m
- Air pressure : 300-1100 mBAR

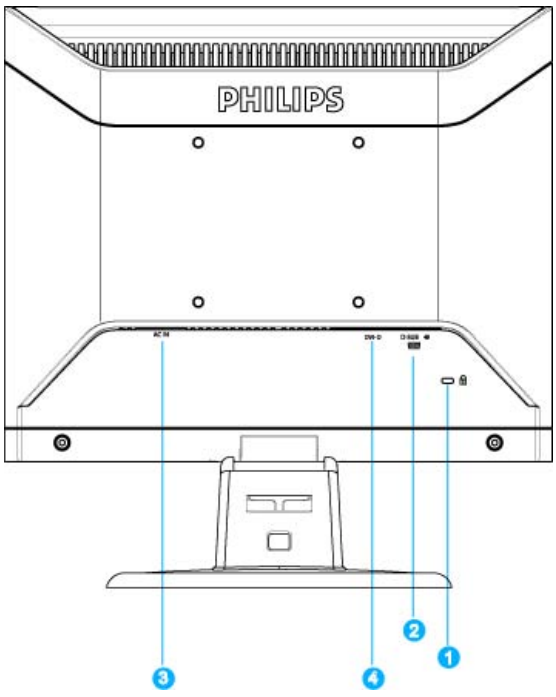
Installation

Front View



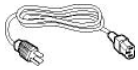
1	⏻	To switch monitor's power On and Off
2	MENU/OK	To access OSD menu
3	▲▼	To adjust the OSD menu
4	☼	To adjust brightness of the display
5	AUTO/◄	Automatically adjust the horizontal position, vertical position, phase and clock settings / Return to previous OSD level.
6	Input	To change the signal input source.
7		SmartImage.There are five modes to be selected: Office Work, Image Viewing, Entertainment, Economy, and Off.

Back View



1 Kensington anti-thief lock
2 VGA input
3 AC power input
4 DVI-D input *

Accessory Pack



Power cord

DVI cable (Optional)

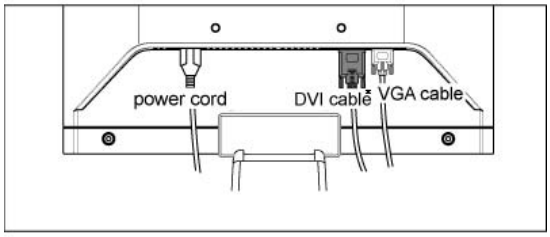
(grey: DD 7G , black: DD7B)

VGA cable

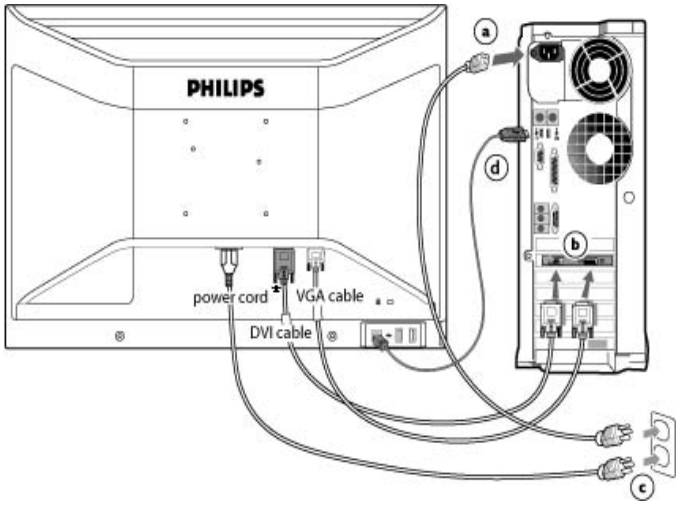
EDFU pack

Connecting to Your PC

1) Connect the power cord to the back of the monitor firmly. (Philips has pre-connected VGA cable for the first installation).*



*available for selective models



2) Connect to PC

(a) Turn off your computer and unplug its power cable.

(b) Connect the monitor signal cable to the video connector on the back of your computer.

(c) Plug the power cord of your computer and your monitor into a nearby outlet.

(d) Turn on your computer and monitor. If the monitor displays an image, installation is complete.

Troubleshooting

This page deals with problems that can be corrected by a user. If the problem still persists after you have tried thesesolutions, contact Philips customer service representative.

Common Problems	
Having this problem	Check these items
No Picture (Power LED not lit)	1.Make sure the power cord is plugged into the power outlet and into the back of the monitor. 2.First, ensure that the power button on the front of the monitor is in the OFF position, then press it to the ON position.
No Picture (Power LED is amber or yellow)	1.Make sure the computer is turned on. 2. Make sure the signal cable is properly connected to your computer. 3.Check to see if the monitor cable has bent pins. 4.The Energy Saving feature may be activated
Screen says	1. Make sure the monitor cable is properly connected to your computer. (Also refer to the Quick Set-Up Guide). 2.Check to see if the monitor cable has bent pins. 3. Make sure the computer is turned on.
AUT O button not working properly	1.The Auto Function is designed for use on standard Macintosh or IBM-compatible PCs running Microsoft Windows. 2. It may not work properly if using nonstandard PC or video card.
Imaging Problems	
Display position is incorrect	1.Press the Auto button. 2. Adjust the image position using the Horizontal Position and/or Vertical Position in OSD Main Controls.
Image vibrates on the screen	Check that the signal cable is properly connected to the graphics board or PC.
Vertical flicker appears	1. Press the Auto button. 2. Eliminate the vertical bars using the More Settings of Phase/Clock in OSD Main Controls.
Horizontal flicker appears	1. Press the Auto button. 2. Eliminate the vertical bars using the More Settings of Phase/Clock in OSD Main Controls.
The screen is too bright or too dark	Adjust the contrast and brightness on OSD Main Controls. (The backlight of the LCD monitor has a fixed life span. When the screen becomes dark or begins to flicker, please contact your dealer).
An after-image appears	If an image remains on the screen for an extended period of time, it may be imprinted in the screen and leave an afterimage. This usually disappears after a few hours.
An after-image remains after the power has been turned off.	This is characteristic of liquid crystal and is not caused by a malfunction or deterioration of the liquid crystal. The after-image will disappear after a peroid of time.
Green, red, blue, dark, and white dots Remains	The remaining dots are normal characteristic of the liquid crystal used in today's technology.

Description of the On Screen Display

What is the On-Screen Display?

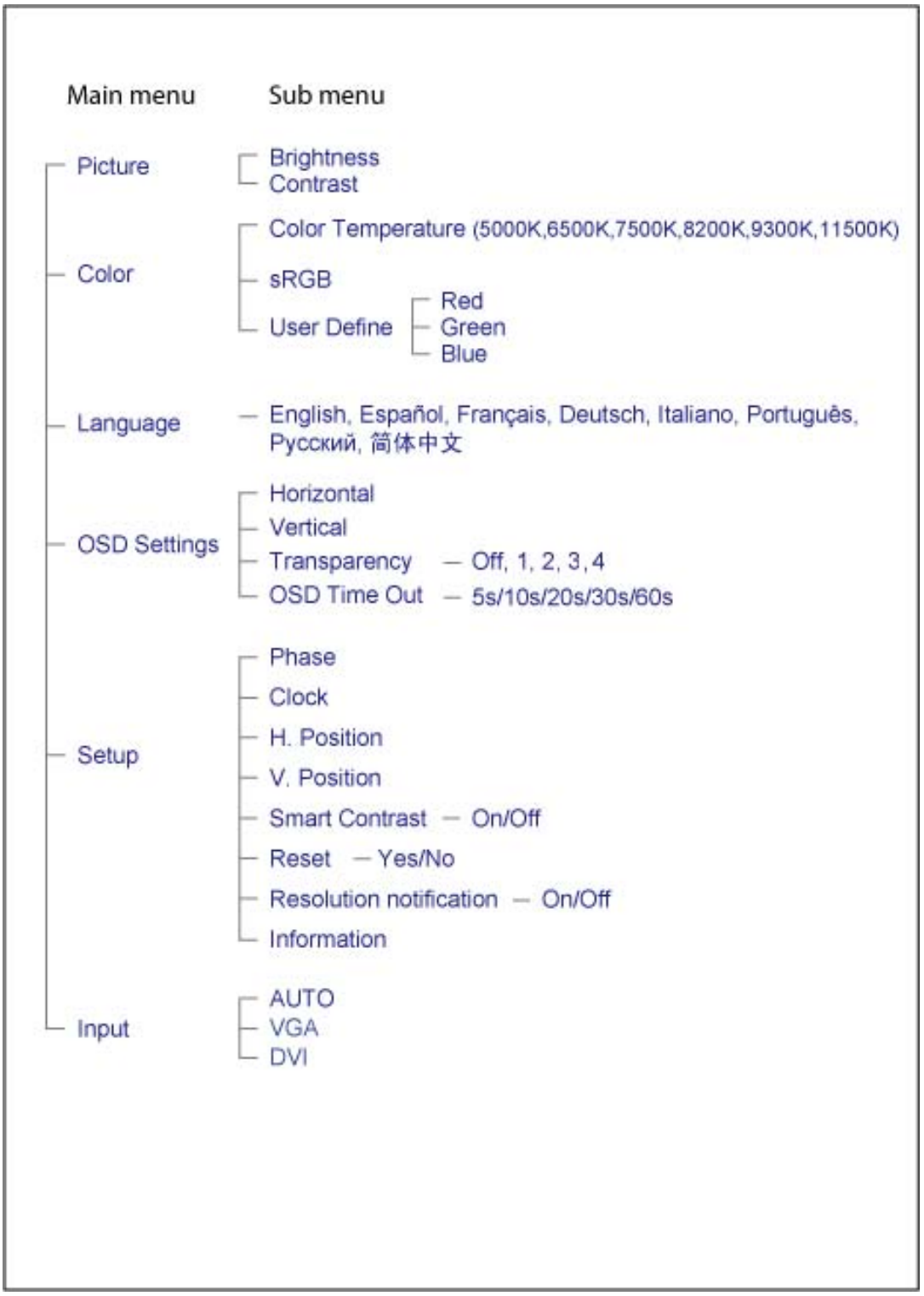
On-Screen Display (OSD) is a feature in all Philips LCD monitors. It allows an end user to adju
screen performance or select functions of the monitors directly through an on-screen instructic
window. A user friendly on screen display interface is shown as below :

Basic and simple instruction on the control keys.

In the OSD shown above users can press ▼▲ buttons at the front bezel of the monitor to n
the cursor, OK to confirm the choice or change.

The OSD Tree

Below is an overall view of the structure of the On-Screen Display. You can use this as a reference when you want to work your way around the different adjustments later on.



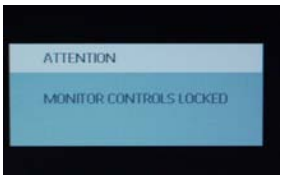
Resolution notification

This monitor is designed for optimal performance at its native resolution, 1280X1024@60Hz. When the monitor is powered on at a different resolution, an alert is displayed on screen: Use 1280x1024@60Hz for best results.

Lock/Unlock,Aging,Factory Mode

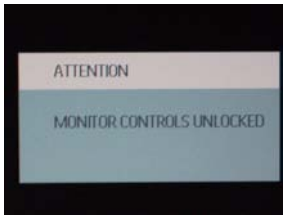
To Lock/Unlock OSD FUNCTION(User Mode)

The OSD function can be locked by pressing"OK"button(1) for more than 10 seconds, the screen shows following windows for 4 seconds. Every time when you press"OK" button, this message appears on the screen automatically.



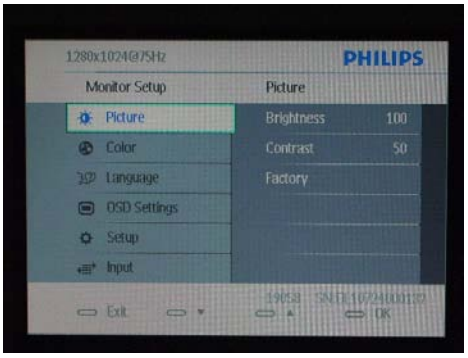
Unlock OSD function

Unlocked OSD function can be released by pressing "OK" button for more than 10 seconds again.



Access Factory Mode

1). Turn off monitor.
2). [Push "AUT O" & "MENU" buttons at the same time and hold them]
+[Press "power" button until comes out "Windows screen"]
=> then release all buttons
3).Press "MENU" button, wait until the OSD menu



Factory Mode indicator

Factory Menu

Cursor can move on gray color area
Hot key function: by pressing " LEFT " and " RIGHT " key Simultaneously at User Mode (or Factory Mode)
(PS: The Offset R G B function can be used on reduce or eliminate snowy noise on the background when the resolution of video signal is 1280*1024vertical 60Hz. Slightly increase or decrease the value until snowy noise completely disappear .

Access Aging Mode

Step 1 : Access Factory Mode then enter Factory Menu.
Step 2 : By pressing "LEFT " and "RIGHT " key to Burning Icon. Press "MENU " then press "LEFT " and "RIGHT " key to turn on Aging Mode.

Step 3 : Disconnect interface cable between Monitor and PC.

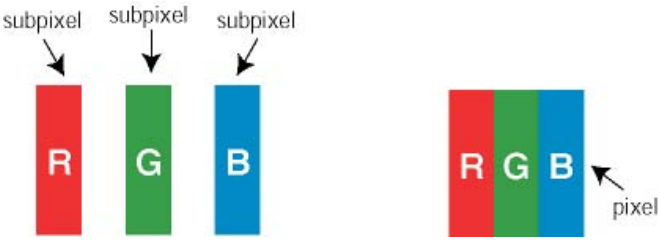
After 3 seconds, bring up:

repeatly
Connect Signal cable again=> go back to normal display

Philips Pixel Defect Policy

Philips' Flat Panel Monitors Pixel Defect Policy

Philips strives to deliver the highest quality products. We use some of the industry's most advanced manufacturing processes and practice stringent quality control. However, pixel or sub pixel defects on the TFT LCD panels used in flat panel monitors are sometimes unavoidable. No manufacturer can guarantee that all panels will be free from pixel defects, but Philips guarantees that any monitor with an unacceptable number of defects will be repaired or replaced under warranty. This notice explains the different types of pixel defects and defines acceptable defect levels for each type. In order to qualify for repair or replacement under warranty, the number of pixel defects on a TFT LCD panel must exceed these acceptable levels. For example, no more than 0.0004% of the sub pixels on a 15" XGA monitor may be defective. Furthermore, Philips sets even higher quality standards for certain types or combinations of pixel defects that are more noticeable than others. This policy is valid worldwide.



Pixels and Sub pixels

A pixel, or picture element, is composed of three sub pixels in the primary colors of red, green and blue. Many pixels together form an image. When all sub pixels of a pixel are lit, the three colored sub pixels together appear as a single white pixel. When all are dark, the three colored sub pixels together appear as a single black pixel. Other combinations of lit and dark sub pixels appear as single pixels of other colors.

Types of Pixel Defects

Pixel and sub pixel defects appear on the screen in different ways. There are two categories of pixel defects and several types of sub pixel defects within each category. Bright dot defects appear as pixels or sub pixels that are always lit or 'on'. These are the types of bright dot defects:

One lit red, green or blue sub pixel

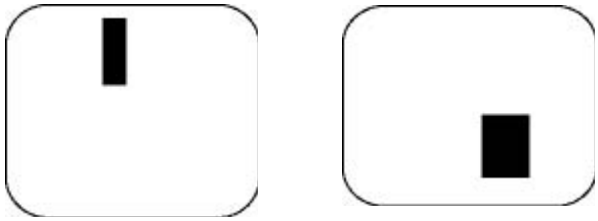
Two adjacent lit sub pixels:
- Red + Blue = Purple
- Red + Green = Yellow
- Green + Blue = Cyan (Light Blue)

Three adjacent lit sub pixels (one white pixel)

Bright Dot Defects Bright dot defects appear as pixels or sub pixels that are always lit or 'on'. That is, a *bright dot* is a sub-pixel that stands out on the screen when the monitor displays a dark pattern. There are three types of bright dot defects:

A red or blue *bright dot* must be more than 50 percent brighter than neighboring dots while a green bright dot is 30 percent brighter than neighboring dots.

Black Dot Defects Black dot defects appear as pixels or sub pixels that are always dark or 'off'. These are the types of black dot defects:



One dark sub pixel

Two or three adjacent dark sub pixels

Proximity of Pixel Defects

Because pixel and sub pixels defects of the same type that are near to one another may be more noticeable, Philips also specifies tolerances for the proximity of pixel defects.

Pixel Defect Tolerances

In order to qualify for repair or replacement due to pixel defects during the warranty period, a TFT LCD panel in a Philips flat panel monitor must have pixel or sub pixel defects exceeding the tolerances listed in the following tables.

BRIGHT DOT DEFECTS	ACCEPT ABLE LEVEL
MODEL	190S8
1 lit subpixel	3
2 adjacent lit subpixels	1
3 adjacent lit subpixels (one white pixel)	0
Distance between two bright dot defects*	25mm or more
Total bright dot defects of all types	3

BLACK DOT DEFECTS	ACCEPTABLE LEVEL
MODEL	190S8
1 dark subpixel	5
2 adjacent dark subpixels	2
3 adjacent dark subpixels (one white pixel)	0
Distance between two black dot defects*	15 mm or more
Total black dot defects of all types	5

TOTAL DOT DEFECTS	ACCEPTABLE LEVEL
MODEL	190S8
Total bright or black dot defects of all types	5

Note:

* 1 or 2 adjacent sub pixel defects = 1 dot defect

Mechanical Instruction

Mechanical Instruction

Front View

Fig.1

Back View

Fig.2

1. Remove the base.

a: Place the monitor face down on a smooth surface as Fig.3. Be carefully to prevent the scratch and injury during the uninstallation.

b. Remove hinge cover by screwdriver as Fig 3.

c. Remove cable management by hand as Fig 3.

d: Unscrew five screws and take off the stand as Fig.4.

Fig.3

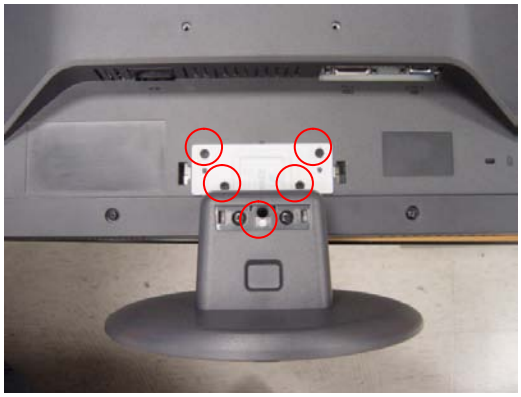


Fig.4

2: Remove the Back Cover Assy

a. Unscrew 3 screws as shown in Fig.5

b. Remove the back cover by 2 released holes on bottom side as shown in Fig.6.

Fig.5

Fig.6

3. Remove the Key board and bezel.

a. Remove key board wire as Fig.7

b. Unscrew the 2 screws to remove the bezel as Fig. 12.

Unscrew the 2 screws and disconnect the 1 cable to remove the

Fig.7

4. Remove the Scalar , Power board.

a. Unscrew the 4 screws on the left and right side as Fig.9 and Fig.10

b. Remove the Mylar-AL and AL tape and yellow tape by hand as Fig.11

c. Release the LVDS cable and take off the shielding as Fig.12

d. Remove AC-socket cover as Fig.12

e. Unscrew the 7 screws to remove Scalar and Power board as Fig.13

Fig.8

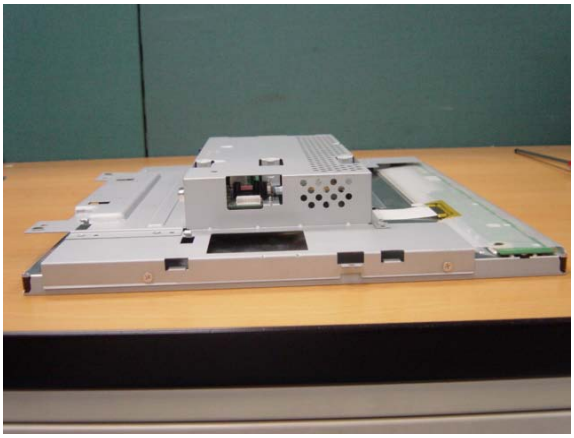


Fig.9

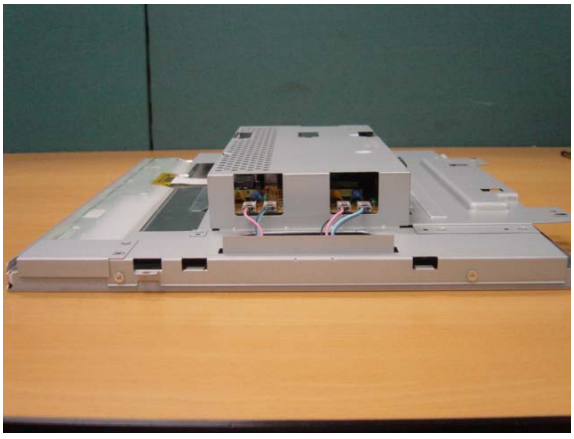


Fig.10

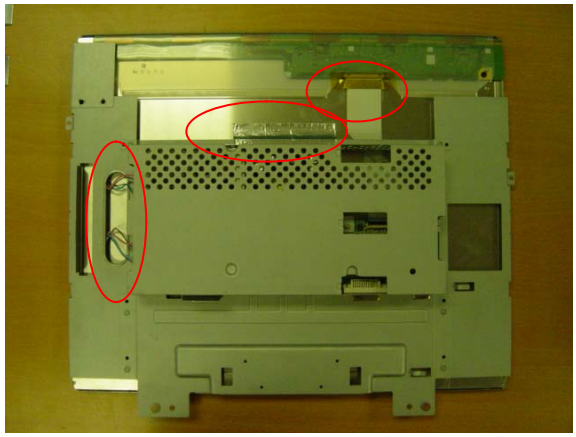


Fig.11

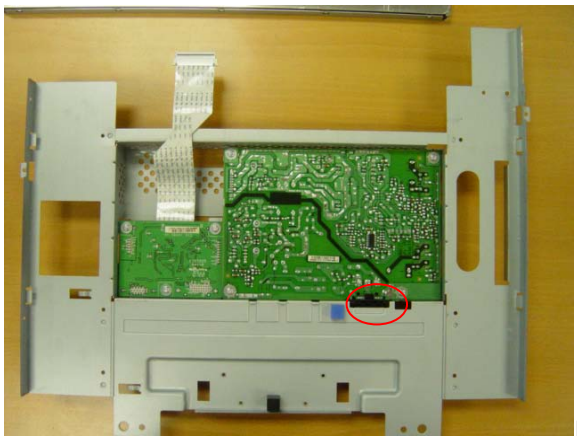


Fig.12

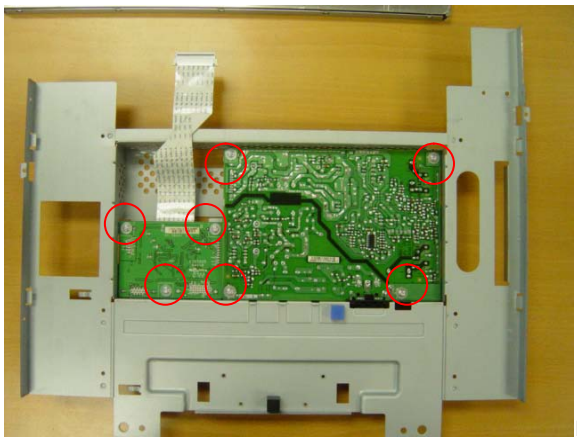


Fig.13

Fig.14

Color Adjustment

Alignment procedure
1. Turn on the LCD monitor .
2.T urn on the Timing/pattern generator. See Fig.1
3. Preset LCD color Analyzer CA-1 10
-Remove the lens protective cover of probe CA-A30.
-Set measuring/viewing selector to measuring position for reset analyzer .(zero calibration) as Fig.2
- Turn on the color analyzer (CA-1 10)
-Press 0-CAL button to starting reset analyzer .

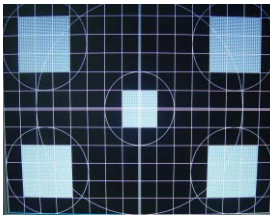


Fig. 1

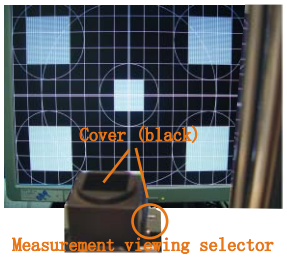
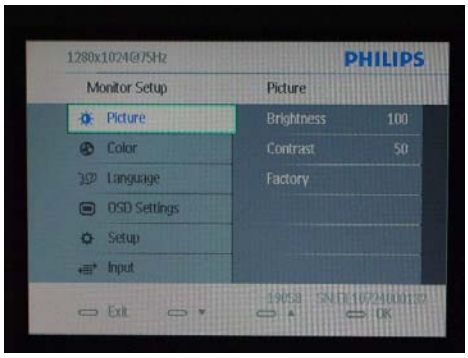


Fig. 2

4. Access Factory Mode

1). Turn off monitor.
2). [Push "AUT O" & "MENU" buttons at the same time and hold them]
+[Press "power" button untill comes out "Windows screen"]
=> then release all buttons
3).Press "MENU " button, wait until the OSD menu as shown in Fig3.



Factory Mode indicator

Fig. 3

4). Press "MENU" button, then select factory mode indicator by "LEFT" or "RIGHT" button .Press"MENU" button to bring up submenu windows as below:

Fig. 4

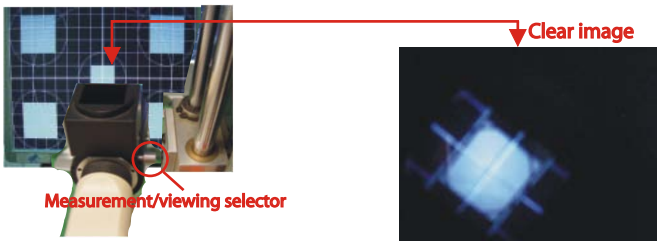


Fig.5

5.Display
Press "LEFT" or "RIGHT" button to select . Change the value by "LEFT" or "RIGHT" key until the X,Y co-ordinates as below

White color adjustment

There are six factory preset white color . Apply full white pattern, with brightness in 100 % position and the contrast control at 50 % position. The 1931 CIE Chromaticity (color triangle) diagram (x,y) coordinate for the screen center should be:

Production		Product SPEC	
5000K	x = 0.345 ± 0.005	5000K	x = 0.345 ± 0.02
	y = 0.357 ± 0.005		y = 0.357 ± 0.02
6500K	x = 0.313 ± 0.005	6500K	x = 0.313 ± 0.02
	y = 0.329 ± 0.005		y = 0.329 ± 0.02
7500K	x = 0.298 ± 0.005	7500K	x = 0.298 ± 0.02
	y = 0.314 ± 0.005		y = 0.314 ± 0.02
8200K	x = 0.291 ± 0.005	8200K	x = 0.291 ± 0.02
	y = 0.306 ± 0.005		y = 0.306 ± 0.02
9300K	x = 0.283 ± 0.005	9300K	x = 0.283 ± 0.02
	y = 0.297 ± 0.005		y = 0.297 ± 0.02
11500K	x = 0.270 ± 0.005	11500K	x = 0.270 ± 0.02
	y = 0.281 ± 0.005		y = 0.281 ± 0.02

Quality inspect

5000K	x = 0.345 ± 0.015
	y = 0.357 ± 0.015
6500K	x = 0.313 ± 0.015
	y = 0.329 ± 0.015
7500K	x = 0.298 ± 0.015
	y = 0.314 ± 0.015
8200K	x = 0.291 ± 0.015
	y = 0.306 ± 0.015
9300K	x = 0.283 ± 0.015
	y = 0.297 ± 0.015
11500K	x = 0.270 ± 0.015
	y = 0.281 ± 0.015

FAQs (Frequently Asked Questions)

General FAQs

Q: When I install my monitor what should I do if the screen shows 'Cannot display this video mode'?
A: Recommended video mode for Philips 19 ": 1280*1024 @ 60Hz.
1. Unplug all cables, then connect your PC to the monitor that you used previously.
2. In the Windows Start Menu, select Settings/Control Panel. In the Control Panel Window, select the Display icon. Inside the Display Control Panel, select the 'Settings' tab. Under the setting tab, in box labeled 'desktop area', move the slidebar to 1440 x 900 pixels (19").
3. Open 'Advanced Properties' and set the Refresh Rate to 60Hz, then click OK.
4. Restart your computer and repeat step 2 and 3 to verify that your PC is set at 1440 x 900@60 Hz (19").
5. Shut down your computer, disconnect your old monitor and reconnect your Philips LCD monitor.
6. Turn on your monitor and then turn on your PC.

Q: What does 'refresh rate' mean in connection with an LCD monitor?
A: The refresh rate is of much less relevance for LCD monitors. LCD monitors display a stable, flicker-free image at 60Hz. There is no visible difference between 85Hz and 60Hz

Q: What are the .inf and .icm files on the CD-ROM? How do I install the drivers (.inf and . icm)?
A: These are the driver files for your monitor. Follow the instructions in your user manual to install the drivers. Your computer may ask you for monitor drivers (.inf and . icm files) or a driver disk when you first install your monitor. Follow the instructions to insert the (companion CD-ROM) included in this package. Monitor drivers (.inf and . icm files) will be installed automatically.

Q: How do I adjust the resolution?
A: Your video card/graphic driver and monitor together determine the available resolutions. You can select the desired resolution under Windows® Control Panel with the "Display properties".

Q: What if I get lost when I am making monitor adjustments?
A: Simply press the MENU button, then select 'Reset' to recall all of the original factory settings.

Q: What is the Auto function?
A: The AUTO adjustment key restores the optimal screen position, phase and clock settings by pressing of a single button – without the need to navigate through OSD (On Screen Display) menus and control keys.
Note: Auto function is available in selected models only.

Q: My Monitor has no power (Power LED does not light up). What should I do?
A: Make sure the AC power cord is connected between the monitor and AC outlet, and click a key on keyboard/mouse to wake up the PC.

Q: Will the LCD monitor accept an interlaced signal under PC models?
A: No. If an Interlace signal is used, the screen displays both odd and even horizontal scanning lines at the same time, thus distorting the picture.

Q: What does the Refresh Rate mean for LCD?
A: Unlike CRT display technology, in which the speed of the electron beam is swept from the top to the bottom of the screen determines flicker, an active matrix display uses an active element (TFT) to control each individual pixel and the refresh rate is therefore not really applicable to LCD technology.

Q: Will the LCD screen be resistant to scratches?
A: A protective coating is applied to the surface of the LCD, which is durable to a certain extent (approximately up to the hardness of a 2H pencil). In general, it is recommended that the panel surface is not subject to any excessive shocks or scratches.

Q: How should I clean the LCD surface?
A: For normal cleaning, use a clean, soft cloth. For extensive cleaning, please use isopropyl alcohol. Do not use other solvents such as ethyl alcohol, ethanol, acetone,hexane, etc.

Q: Can I change the color setting of my monitor?
A: Yes, you can change your color setting through OSD control as the following procedures,
1. Press "MENU" to show the OSD (On Screen Display) menu.
2. Press "Left Arrow" to select the option "color" then press "MENU" to enter color setting, there are five settings as below.
   a. 6500K; this setting features the panel closed to red-white color tone.
   b. 9300K; this setting features the panel closed to blue-white color tone.
   c. Original; this setting load the default panel setting in terms of color tone. (Note: different panel maker may feature a different color temperature*)
   d. User Define; the user can choose his/her preference color setting by adjusting red, green, blue color.
   e. sRGB; this is a standard setting for ensuring correct exchange of colors between different device (e.g. digital cameras, monitors, printers, scanners, etc.)

Q: Can the Philips LCD Monitor be mounted on the wall?
A: Yes. Philips LCD monitors have this optional feature. For standard VESA mount holes on the rear cover allows the user to mount the Philips monitor on most of the VESA standard arms or accessories. We recommend to contact your Philips sales representative for more information.

Screen Adjustments

Q: What is the FPadjust program on the CD-ROM?
A: The FPadjust program generates alignment patterns that help you adjust monitor settings such as Contrast, Brightness, Horizontal Position, Vertical Position, Phase and Clock for optimal performance.

Q: When I install my monitor, how do I get the best performance from the monitor?
A: 1. For best performance, make sure your display settings are set at 1440 x 900@ 60Hz for 19". Note: You can check the current display settings by pressing the OSD MENU button once. The current display mode is shown in OSD first page.

2. To install the Flat Panel Adjust (FPadjust) program located on the monitor setup CD-ROM, open the CD-ROM and double-click the FP_setup4.3.exe icon. This will install FP Adjust automatically and place a shortcut on your desktop.
3. Run FPadjust by double clicking the shortcut. Follow the instructions step by step to optimize image performance with your system's video controller.

Q: How do LCDs compare to CRTs in terms of radiation?
A: Because LCDs do not use an electron gun, they do not generate the same amount of radiation at the screen surface.

Compatibility with other Peripherals

Q: Are Philips LCD monitors Plug-and-Play?
A: Yes, the monitors are Plug-and-Play compatible with Windows 95, 98, 2000 and XP.

Q: What is USB (Universal Serial Bus)?
A: Think of USB as a smart plug for PC peripherals. USB automatically determines resources (like driver software and bus bandwidth) required by peripherals. USB makes necessary resources available without user intervention. There are three main benefits of USB. USB eliminates "case anxiety," the fear of removing the computer case to install circuit board cards -- that often requires adjustment of complicated IRQ settings -- for add-on peripherals. USB does away with "port gridlock." Without USB, PCs are normally limited to one printer, two Com port devices (usually a mouse and modem), one Enhanced Parallel Port add-on (scanner or video camera, for example), and a joystick. More and more peripherals for multimedia computers come on the market every day. With USB, up to 127 devices can run simultaneously on one computer. USB permits "hot plug-in." No need to shut down, plug in, reboot and run set up to install peripherals. No need to go through the reverse process to unplug a device. Bottom line: USB transforms today's "Plug-and-Pray" into true Plug-and-Play! Please refer to glossary for more information about USB.

Q: What is a USB hub ?
A: A USB hub provides additional connections to the Universal Serial Bus. A hub's upstream port connects a hub to the host, usually a PC. Multiple downstream ports in a hub allows connection to another hub or device, such as a USB keyboard, camera or printer.

LCD Panel Technology

Q: What is a Liquid Crystal Display?
A: A Liquid Crystal Display (LCD) is an optical device that is commonly used to display ASCII characters and images on digital items such as watches, calculators, portable game consoles, etc. LCD is the technology used for displays in notebooks and other small computers. Like light-emitting diode and gas-plasma technologies, LCD allows displays to be much thinner than cathode ray tube(CRT) technology.LCD consumes much less power than LED and gas-displays because it works on the principle of blocking light rather than emitting it.

Q: What differentiates passive matrix LCDs from active matrix LCDs?
A: An LCD is made with either a passive matrix or an active matrix display grid. An active matrix has a transistor located at each pixel intersection, requiring less current to control the luminance of a pixel. For this reason, the current in an active matrix display can be switched on and off more frequently, improving the screen refresh time (your mouse pointer will appear to move more smoothly across the screen, for example). The passive matrix LCD has a grid of conductors with pixels located at each intersection in the grid.

Q: What are the advantages of TFT LCD compared with CRT?
A: In a CRT monitor, a gun shoots electrons and general light by colliding polarized electrons on fluorescent glass. Therefore, CRT monitors basically operate with an analog RGB signal. A TFT LCD monitor is a device that displays an input image by operating a liquid crystal panel. The TFT has a fundamentally different structure than a CRT: Each cell has an active matrix structure and independent active elements. A TFT LCD has two glass panels and the space between them is filled with liquid crystal. When each cell is connected with electrodes and impressed with voltage, the molecular structure of the liquid crystal is altered and controls the amount of inlet lighting to display images. A TFT LCD has several advantages over a CRT, since it can be very thin and no flickering occurs because it does not use the scanning method.

Q: Why is vertical frequency of 60Hz optimal for an LCD monitor?
A: Unlike a CDT monitor, the TFT LCD panel has a fixed resolution. For example, an XGA monitor has 1024x3 (R, G, B) x 768 pixels and a higher resolution may not be available without additional software processing. The panel is designed to optimize the display for a 65MHz dot clock, one of the standards for XGA displays. Since the

Q: What kind of wide-angle technology is available? How does it work?
A: The TFT LCD panel is an element that controls/displays the inlet of a backlight using the dual-refraction of a liquid crystal. Using the property that the projection of inlet light refracts toward the major axis of the liquid element, it controls the direction of inlet light and displays it. Since the refraction ratio of inlet light on liquid crystal varies with the inlet angle of the light, the viewing angle of a TFT is much narrower than that of a CDT. Usually, the viewing angle refers to the point where the contrast ration is 10. Many ways to widen the viewing angle are currently being developed and the most common approach is to use a wide viewing angle film, which widens the viewing angle by varying the refraction ratio. IPS (In Plane Switching) or MVA (Multi Vertical Aligned) is also used to give a wider viewing angle.

Q: Why is there no flicker on an LCD Monitor?
A: Technically speaking, LCDs do flicker, but the cause of the phenomenon is different from that of a CRT monitor -- and it has no impact of the ease of viewing. Flickering in an LCD monitor relates to usually undetectable luminance caused by the difference between positive and negative voltage. On the other hand, CRT flickering that can irritate the human eye occurs when the on/off action of the fluorescent object becomes visible. Since the reaction speed of liquid crystal in an LCD panel is much slower, this troublesome form of flickering is not present in an LCD display.

Q: Why is an LCD monitor virtually low of Electro Magnetic Interference?
A: Unlike a CRT, an LCD monitor does not have key parts that generate Electro Magnetic Interference, especially magnetic fields. Also, since an LCD display utilizes relatively low power, its power supply is extremely quiet.

Ergonomics, Ecology and Safety Standards

Q: What is the CE mark?
A: The CE (Conformite Europeenne) mark is required to be displayed on all regulated products offered for sale on the European market. This 'CE' mark means that a product complies with the relevant European Directive. A European Directive is a European 'Law' that relates to health, safety, environment and consumer protection, much the same as the U.S. National Electrical Code and UL Standards.

Q: Does the LCD monitor conform to general safety standards?
A: Yes. Philips LCD monitors conform to the guidelines of MPR-II and TCO 99/03 standards for the control of radiation, electromagnetic waves, energy reduction, electrical safety in the work environment and recyclability. The specification page provides detailed data on safety standards.

1 Electrical characteri stics

1.1 Interface sig nal s

1). D-Sub Analog

Input signal : Video, Hsync., Vsync

Video : 0.7 Vp-p, input impedance, 75 ohm @DC

Sync. : Separate sync TTL level , input impedance 2.2k ohm terminate

Hsync Positive/Negative

Vsync Positive/Negative

Composite sync TTL level, input impedance 2.2k ohm terminate(Positive/Negative)

Sync on green video 0.3 Vp-p Negative (Video 0.7 Vp-p Positive)

2). Intel DVI Digital

Input signal : Four channel TMDS signal

1.2 Interface

1.2.1 D-Sub Cable

Length : 1.8 M +/- 50 mm (fixed) , fix in monitor and with transplant pin protect cover.

Connector type : D-Sub male with DDC2B pin assignments.

Blue connector thumb-operated jack screws

1.3 Timi ng re quire ment

1.3.1 Mode stor in g capacit y

Factory preset modes : 11

Preset modes : 49

User define modes : 24

Note: Screen displays perfect picture at 17 factory-preset modes.

1.3.2 Factor y preset m odes (11 modes)

	H.Freq. (KHz)	Mode	Resolution	V.Freq. (Hz)
1	31.469	IBM VGA 3H	720x400	70.087
2	31.469	IBM VGA 12H	640x480	59.94
3	35	MACINTOSH	640x480	67
4	37.5	VESA	640x480	75
5	35.156	VESA	800x600	56.25
6	37.879	VESA	800x600	60.317
7	46.875	VESA	800x600	75
8	48.363	VESA	1024x768	60.004
9	60.023	VESA	1024x768	75.029
10	63.981	VESA	1280x1024	60.02
11	79.976	VESA	1280x1024	75.025

2 White color adjustment

There are six factory preset white color. Apply full white pattern, with brightness in 100 % position and the contrast control at 50 % position. The 1931 CIE Chromaticity (color triangle) diagram (x,y) coordinate for the screen center should be:

Production		Product SPEC	
5000K	x = 0.345 ± 0.005	5000K	x = 0.345 ± 0.02
	y = 0.357 ± 0.005		y = 0.357 ± 0.02
6500K	x = 0.313 ± 0.005	6500K	x = 0.313 ± 0.02
	y = 0.329 ± 0.005		y = 0.329 ± 0.02
7500K	x = 0.298 ± 0.005	7500K	x = 0.298 ± 0.02
	y = 0.314 ± 0.005		y = 0.314 ± 0.02
8200K	x = 0.291 ± 0.005	8200K	x = 0.291 ± 0.02
	y = 0.306 ± 0.005		y = 0.306 ± 0.02
9300K	x = 0.283 ± 0.005	9300K	x = 0.283 ± 0.02
	y = 0.297 ± 0.005		y = 0.297 ± 0.02
11500K	x = 0.270 ± 0.005	11500K	x = 0.270 ± 0.02
	y = 0.281 ± 0.005		y = 0.281 ± 0.02

Quality inspect

5000K	x = 0.345 ± 0.015
	y = 0.357 ± 0.015
6500K	x = 0.313 ± 0.015
	y = 0.329 ± 0.015
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9300K	x = 0.283 ± 0.015
	y = 0.297 ± 0.015
11500K	x = 0.270 ± 0.015
	y = 0.281 ± 0.015

Configuration and procedure

"Novatek EasyWrite v4.0 Beta2" The software is provided by Novatek to upgrade the firmware of CPU.

Novatek ISP Tools is for the interface between "Parallel Port of PC" and "15 pin-D-SUB connector of Monitor".

It is a windows-based program, which cannot be run in MS-DOS.

System and equipment requirements

1. An Pentium (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98/2000/XP and Port95NT.exe.
3. ISP Software " Novatek EasyWrite v4.0 Beta2"
4. ISP boardas shown in Fig. 1

And I2C Board Jump wire should follow J10 (short), J9 (open), J5/J6/ (1and 2 pin short) J7/J8 (1 and 2 pin short)

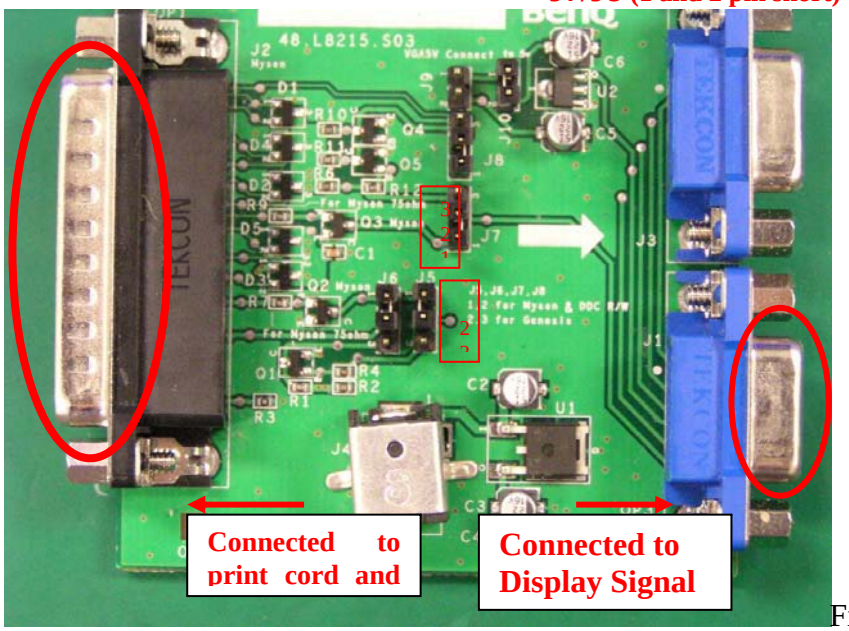


Fig.1

5. Connect and Mains cord to Monitor as shown in Fig.2.

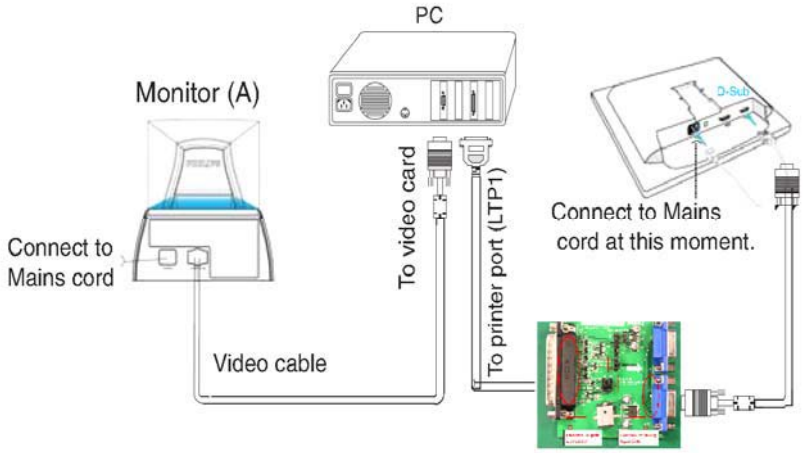


Fig.2

5. Connect and Mains cord to Monitor as shown in Fig.2.

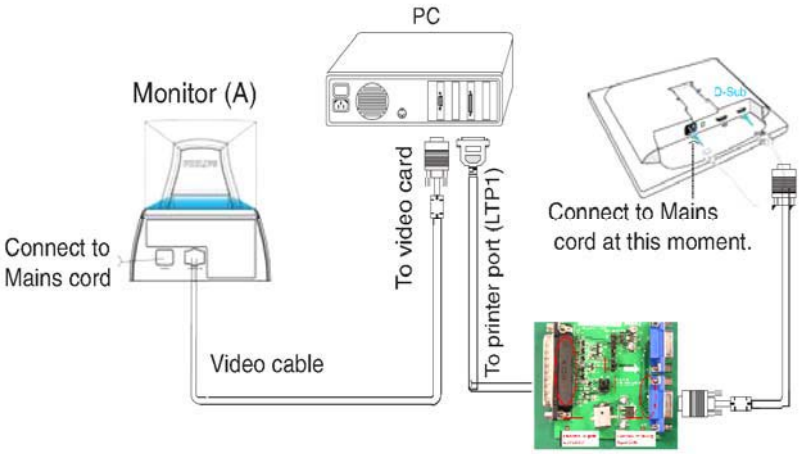
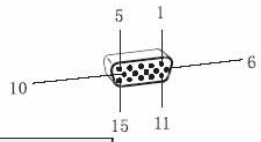


Fig.2

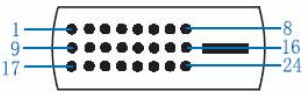
Pin assignment

A. 15-pin D-Sub Connector



PIN No.	SIGNAL
1	Red video input
2	Green video input / sync on green
3	Blue video input
4	GND
5	GND - Cable detect
6	Red video GND
7	Green video GND
8	Blue video ND
9	DDC +3.3V or +5V
10	Logic GND
11	GND
12	Serial data line (SDA)
13	H-sync / H+V
14	V-sync
15	Data clock line (SCL)

B. Input DVI -D Connector pin



Pin No.	Description
1	T.M.D.S. data2-
2	T.M.D.S. data2+
3	T.M.D.S. data2 shield
4	No Connect
5	No Connect
6	DDC clock
7	DDC data
8	No Connect
9	T.M.D.S. data1-
10	T.M.D.S. data1+
11	T.M.D.S. data1 shield
12	No Connect
13	No Connect
14	+5V Power
15	Ground (for +5V) - Cable detect
16	Hot plug detect
17	T.M.D.S. data0-
18	T.M.D.S. data0+
19	T.M.D.S. data0 shield
20	No Connect
21	No Connect
22	T.M.D.S clock shield
23	T.M.D.S. clock+
24	T.M.D.S. clock-

Fig. 2a

6. Setup the Philips-IMS EDID Tools program
Step 1: Make a folder in your PC as shown in Fig. 3.
For example: C:\EDID
Step 2: Copy PI-EDID Software into your folder as shown in Fig.3.

Fig.3

Step 3: Copy the
LCD_Analog.ddc and LCD_DVI.ddc
to C:\EDID as shown in Fig. 4 .

Fig.4

Update the DDC

1. Connect DSUB Cable to I2C Board.
   Double click the PI-EDID.exe icon in desktop then appears window as shown in Fig.5.

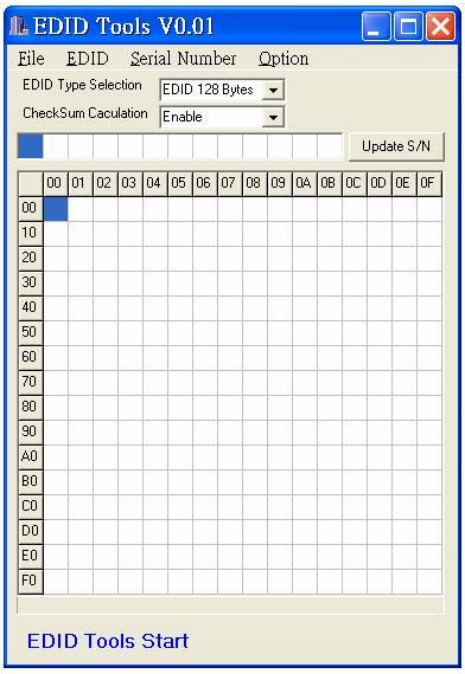


Fig.5

2. Press File->OPEN EDID to Load DDC file as shown in Fig.6.
   Load Analog EDID file LCD_Analog.ddc to PI-EDID.exe

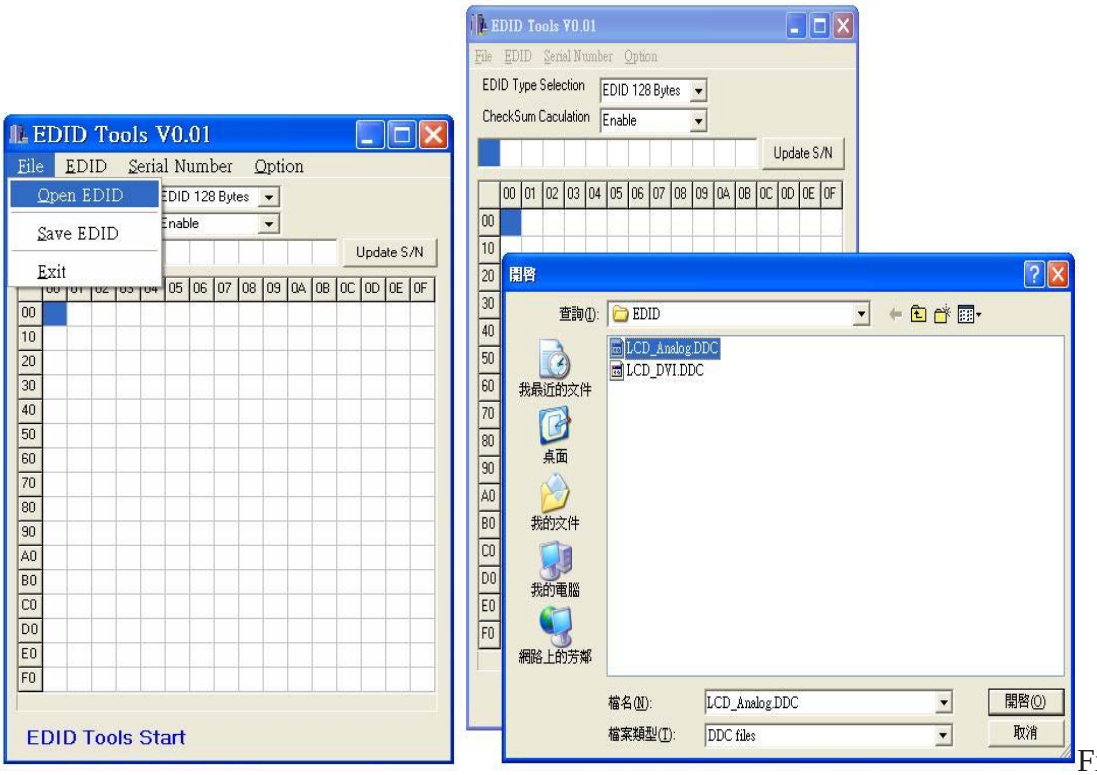


Fig.6

3. Load EDID file OK as shown in Fig.7.

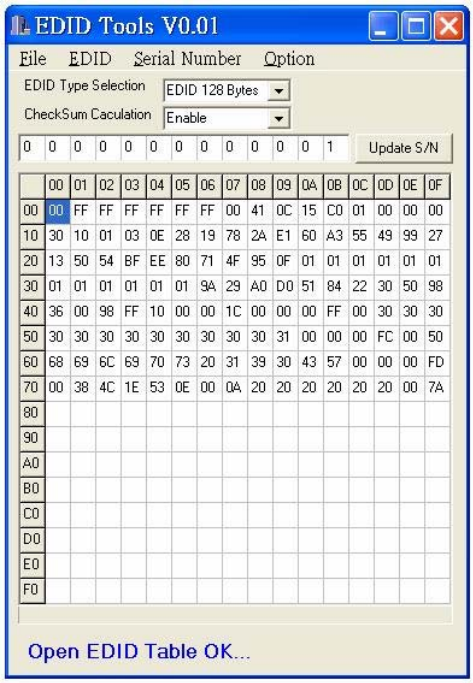


Fig.7

4. Modify Serial Number then Press “Update S/N” button as shown in Fig.8.

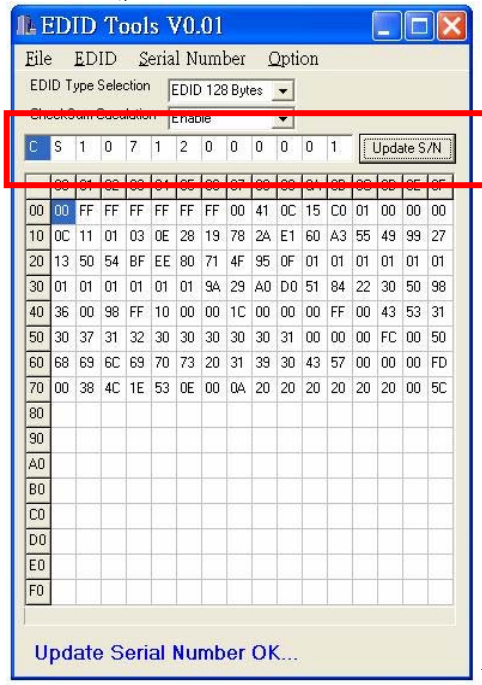


Fig.8

5. Press EDID->Write to write EDID data to EEPROM as shown in Fig. 9.

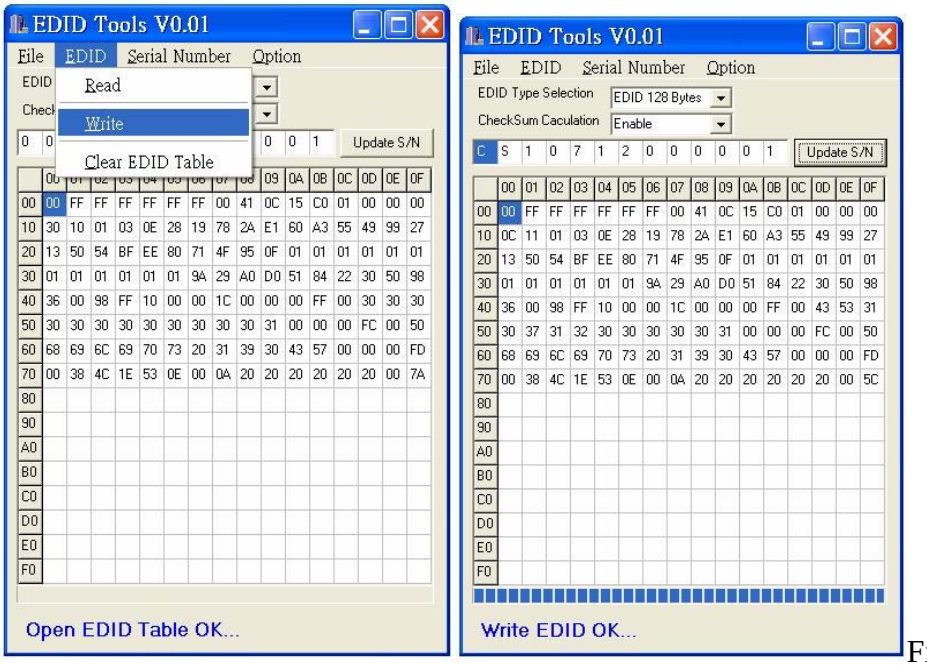


Fig.9

6. Connect DVI Cable to I2C Board.
   Repeat Step 1~5 to write DVI EDID file.

7. Enter Factory Mode then Press the Serial Number->Write EDIDS/N to EEPROM as shown in Fig.10
   Note: If not enter Factory Mode, this Wrote EDID S/N will not work.

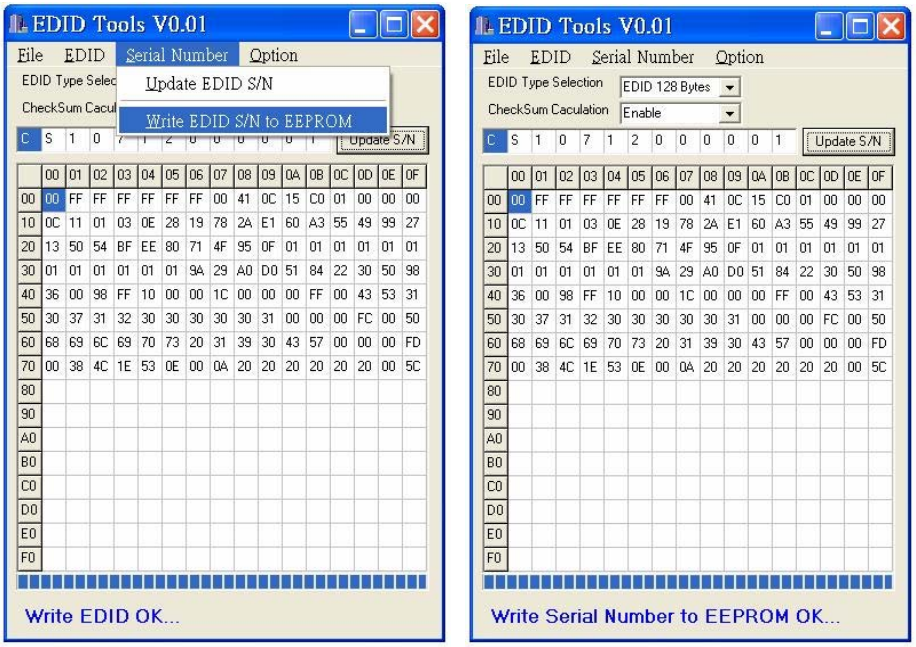


Fig.10

8. Press Monitor Menu Key to check OSD Serial number is the same as PI-EDID write data as shown in Fig.10
   Note: If not the same, please rewrite EDID S/N again.

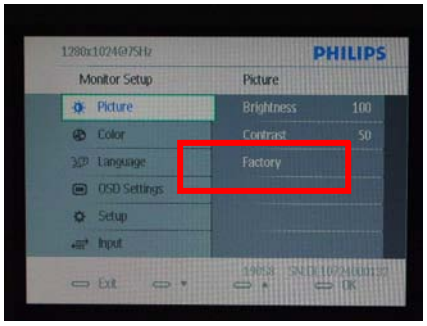
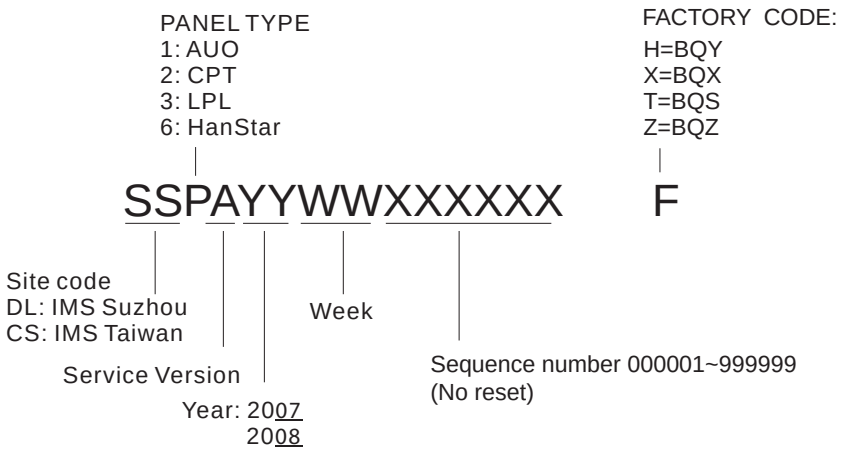


Fig.14

9 Turn off the monitor, exit the factory mode.

Serial Number Definition



DDC DATA

THE DISPLAY DATA CHANNEL (DDC_2B) CONTENT INCLUDING:

//////////Displaying Monitor ANALOG EDID//////////

128 bytes EDID Data (Hex):

```
        0   1   2   3   4   5   6   7   8   9

  0: 00  FF  FF  FF  FF  FF  FF  00  41  0C
 10: 59  08  84  00  00  00  18  11  01  03
 20: 1F  26  1E  78  EE  A2  A5  A3  57  4C
 30: 9D  25  11  50  54  BF  EF  80  81  80
 40: 81  40  71  4F  01  01  01  01  01  01
 50: 01  01  01  01  30  2A  00  98  51  00
 60: 2A  40  30  70  13  00  78  2D  11  00
 70: 00  1E  00  00  00  FF  00  44  4C  31
 80: 30  37  32  34  30  30  30  31  33  32
 90: 00  00  00  FC  00  50  68  69  6C  69
100: 70  73  20  31  39  30  53  0A  00  00
110: 00  FD  00  38  4C  1E  53  0E  00  0A
120: 20  20  20  20  20  20  00  83
```

Decoded EDID data

<---Header--->
Header: 00 FF FF FF FF FF FF 00
<-x-Header-x->

<---Vendor/Product Identification--->
ID Manufacturer Name: PHL
ID Product Code: 2137
ID Serial Number: 00000084
Week of Manufacture: 24
Year of Manufacture: 2007
<-x-Vendor/Product Identification-x->

<---EDID Structure Version/Revision--->
EDID Version#: 1
EDID Revision#: 3
<-x-EDID Structure Version/Revision-x->

<---Basic Display Parameters/Features--->
Video i/p definition: Digital
Setup: Blank-to-Black expected
Seperate Syncs. support: Yes
Composite Sync. support: Yes
Vsync. Pulse: serration required
Max Horz Image Size: 38 cm.
Max Vert Image Size: 30 cm.
Display Gamma: 2.2
Display Type: RGB color display
Standard Default Color Space: Yes
Features, Preferred Timing Mode: In first detailed block
Features, GTF support: No
DPMS Features, Stand-by: Yes
DPMS Features, Suspend: Yes
DPMS Features, Active Off: Yes
<-x-Basic Display Parameters/Features-x->

<---Color Characteristics--->
Red x: 0.638672
Red y: 0.341797
Green x: 0.296875
Green y: 0.615234
Blue x: 0.146484
Blue y: 6.83594e-002
White x: 0.313477
White y: 0.329102
<-x-Color Characteristics-x->

<---Established Timings--->
Established Timimgs 1: BF
- 720x400 @70Hz
- 640x480 @60Hz
- 640x480 @67Hz
- 640x480 @72Hz
- 640x480 @75Hz
- 800x600 @56Hz
- 800x600 @60Hz

Established Timimgs 2: EF
- 800x600 @72Hz
- 800x600 @75Hz
- 832x624 @75Hz
- 1024x768 @60Hz
- 1024x768 @70Hz
- 1024x768 @75Hz
- 1280x1024 @75Hz
- 1152x870x75Hz

Established Timings 3: 80
<-x-Established Timings-x->

<---Standard Timing Identification--->
Standard Timing: 1280x1024 @60Hz
Standard Timing: 1280x960 @60Hz
Standard Timing: 1152x864 @75Hz
<-x-Standard Timing Identification-x->

<---Detailed Timing Descriptions--->
Detailed Timing: 1280x1024 @60Hz
Detailed Timing: FF (Monitor SN) 'DL10724000132'
Detailed Timing: FC (Monitor name) 'Philips 190S'
Detailed Timing: FD (Monitor limits)
Vert: 56 - 76 Hz
Horz: 30 - 83 KHz
Clk: 140 MHz
<-x-Detailed Timing Descriptions-x->
Extension Flag: 00
Checksum: 83

//////////Displaying Monitor DIGITAL EDID //////////

128 bytes EDID Data (Hex):

```
    0  1  2  3  4  5  6  7  8  9

 0: 00  FF  FF  FF  FF  FF  FF  00  41  0C
10: 59  08  84  00  00  00  18  11  01  03
20: 80  26  1E  78  EE  A2  A5  A3  57  4C
30: 9D  25  11  50  54  BF  EF  80  81  80
40: 81  40  71  4F  01  01  01  01  01  01
50: 01  01  01  01  30  2A  00  98  51  00
60: 2A  40  30  70  13  00  78  2D  11  00
70: 00  1E  00  00  00  FF  00  44  4C  31
80: 30  37  32  34  30  30  30  31  33  32
90: 00  00  00  FC  00  50  68  69  6C  69
100: 70  73  20  31  39  30  53  0A  00  00
110: 00  FD  00  38  4C  1E  53  0E  00  0A
120: 20  20  20  20  20  20  00  22
```

Decoded EDID data

<---Header--->
Header: 00 FF FF FF FF FF FF 00
<-x-Header-x->

<---Vendor/Product Identification--->
ID Manufacturer Name: PHL
ID Product Code: 2137
ID Serial Number: 00000084
Week of Manufacture: 24
Year of Manufacture: 2007
<-x-Vendor/Product Identification-x->

<---EDID Structure Version/Revision--->
EDID Version#: 1
EDID Revision#: 3
<-x-EDID Structure Version/Revision-x->

<---Basic Display Parameters/Features--->
Video i/p definition: Analog
Setup: Blank-to-Black not expected
Seperate Syncs. support: No
Composite Sync. support: No
Vsync. Pulse: serration not required
Max Horz Image Size: 38 cm.
Max Vert Image Size: 30 cm.
Display Gamma: 2.2
Display Type: RGB color display
Standard Default Color Space: Yes
Features, Preferred Timing Mode: In first detailed block
Features, GTF support: No
DPMS Features, Stand-by: Yes
DPMS Features, Suspend: Yes
DPMS Features, Active Off: Yes
<-x-Basic Display Parameters/Features-x->

<---Color Characteristics--->
Red x: 0.638672
Red y: 0.341797
Green x: 0.296875
Green y: 0.615234
Blue x: 0.146484
Blue y: 6.83594e-002
White x: 0.313477
White y: 0.329102
<-x-Color Characteristics-x->

<---Established Timings--->
Established Timimgs 1: BF
- 720x400 @70Hz
- 640x480 @60Hz
- 640x480 @67Hz
- 640x480 @72Hz
- 640x480 @75Hz
- 800x600 @56Hz
- 800x600 @60Hz

Established Timimgs 2: EF
- 800x600 @72Hz
- 800x600 @75Hz
- 832x624 @75Hz
- 1024x768 @60Hz
- 1024x768 @70Hz
- 1024x768 @75Hz
- 1280x1024 @75Hz
- 1152x870x75Hz

Established Timings 3: 80
<-x-Established Timings-x->

<---Standard Timing Identification--->
Standard Timing: 1280x1024 @60Hz
Standard Timing: 1280x960 @60Hz
Standard Timing: 1152x864 @75Hz
<-x-Standard Timing Identification-x->

<---Detailed Timing Descriptions--->
Detailed Timing: 1280x1024 @60Hz
Detailed Timing: FF (Monitor SN) 'DL10724000132'
Detailed Timing: FC (Monitor name) 'Philips 190S'
Detailed Timing: FD (Monitor limits)
Vert: 56 - 76 Hz
Horz: 30 - 83 KHz
Clk: 140 MHz
<-x-Detailed Timing Descriptions-x->
Extension Flag: 00
Checksum: 22

Firmware Upgrade for CPU

Configuration and procedure

"Novatek EasyWrite v4.0 Beta2" The software is provided by Novatek to upgrade the firmware of CPU.

Novatek ISP Tools is for the interface between "Parallel Port of PC" and "15 pin-D-SUB connector of Monitor".

It is a windows-based program, which cannot be run in MS-DOS.

System and equipment requirements

1. An Pentium (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98/2000/XP and Port95NT.exe.
3. ISP Software " Novatek EasyWrite v4.0 Beta2"
4. ISP boardas shown in Fig. 1

And I2C Board Jump wire should follow J10 (short), J9 (open), J5/J6/ (1and 2 pin short) J7/J8 (1 and 2 pin short)

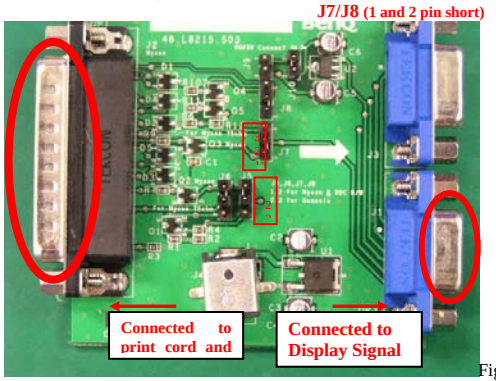


Fig.1

5. Connect and Mains cord to Monitor as shown in Fig.2.

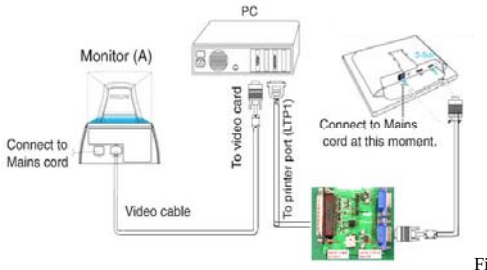


Fig.2

6. Setup the Novatek ISP Tools program

Step 1: Install Novatek ISP Tools in your PC as shown in Fig. 3.

For example: C:\Program Files\EasyUSB Writer

Fig.3

Step 2: Copy the LCD_Monitor_Firmware.hex to F:\Bin as shown in Fig. 4 .

Fig.4

Update the firmware

1. Double click the Writer.exe then appears window as shown in Fig.5.

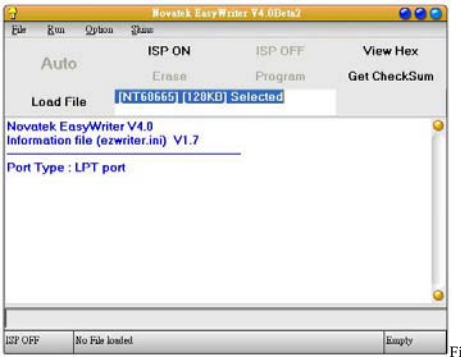


Fig.5

2. Press Option->MCU type select then select the MCU type as shown in Fig.6.

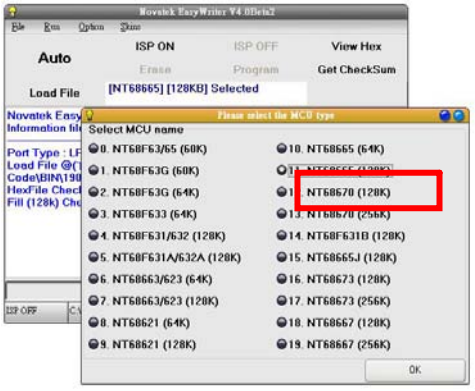


Fig.6

3. Press Option->Setup ISP Tool then select the Myson as shown in Fig.7.

Fig.7

4. Make sure the MCU type and transfer port are corrected as shown in Fig.8.

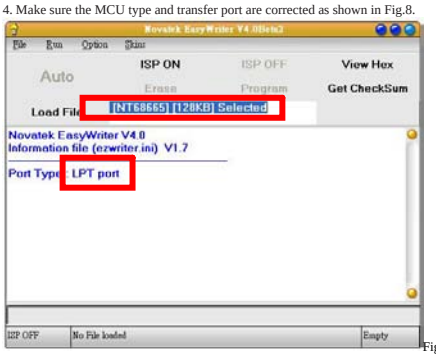


Fig.8

5. Press Load File to select the LCD_Monitor_Firmware.hex as shown in Fig.9.

Fig.9

6. Press AUTO running program , the firmware be updated as shown in Fig. 10.

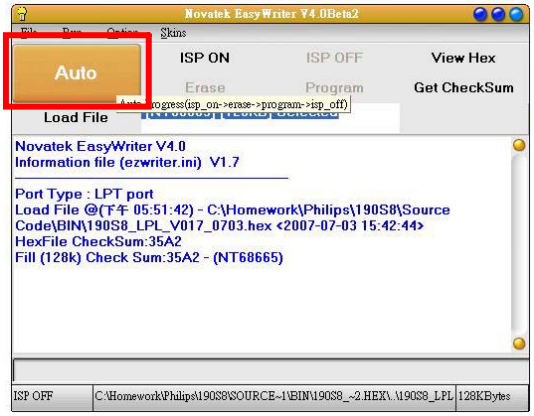


Fig.10

7 Check the firmware version
1). Turn off monitor.
2). [Push "AUTO" & "MENU" buttons at the same time and hold them]
+[Press "power" button until comes out "Windows screen"]
=> Then release all buttons.
3).Press "MENU" button, wait until the OSD menu come on the Screen of the monitor.as shown in Fig.10
4).Choose Factory to enter Factory mode as shown in Fig 11.

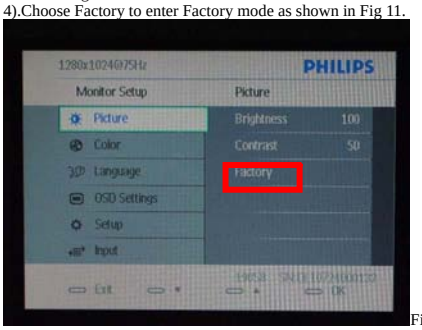


Fig.11

5). You will find, after upgrade, the version have already changed from the former as shown in Fig.12

Fig.12

6). Turn off the monitor, exit the factory mode.

If there is a warring message coming as shown in Fig. 13. , check the AC power, Video cable, Parallel Port, Low CPU Speed or Novatek MCU.

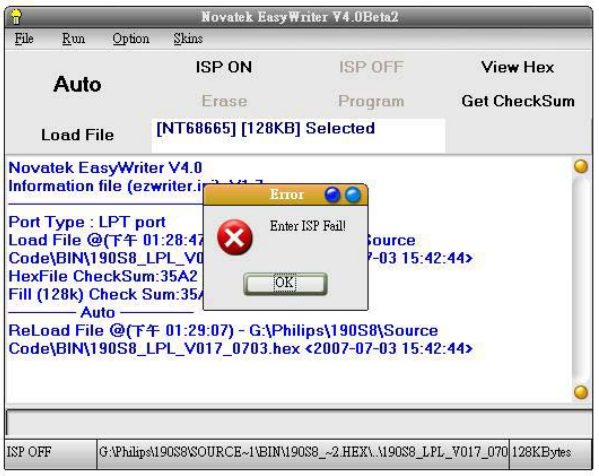


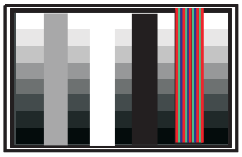
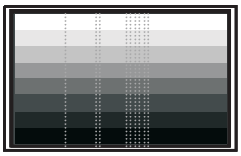
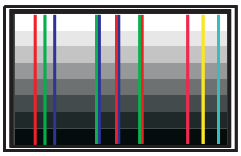
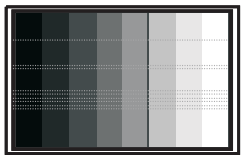
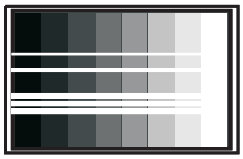
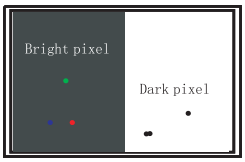
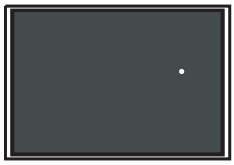
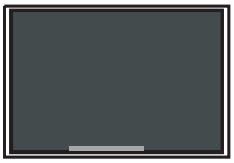
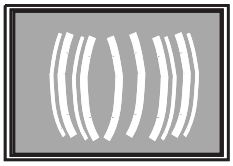
Fig.13

Failure Mode Of Panel

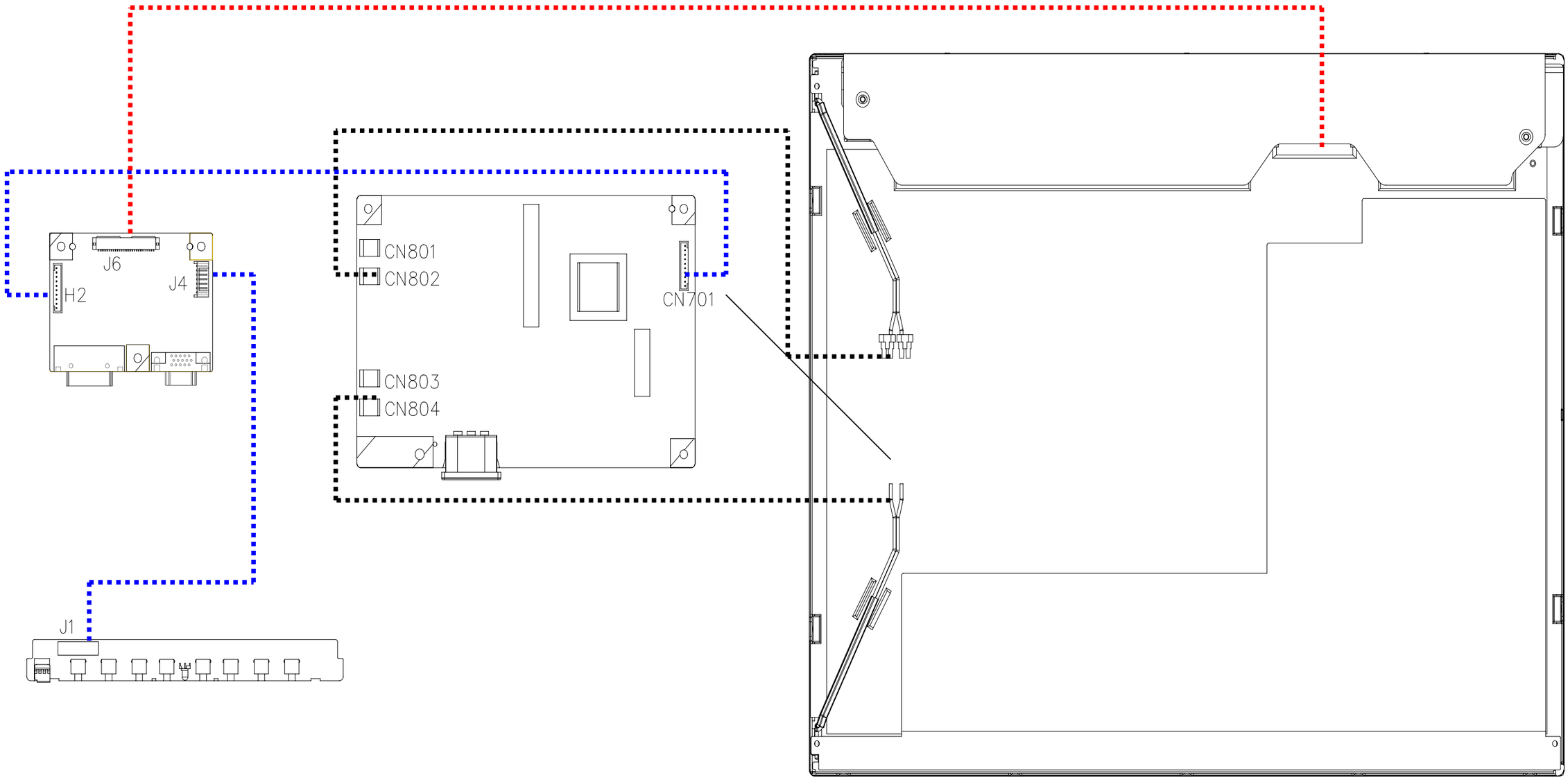
Go to cover page

Quick reference for failure mode of LCD panel

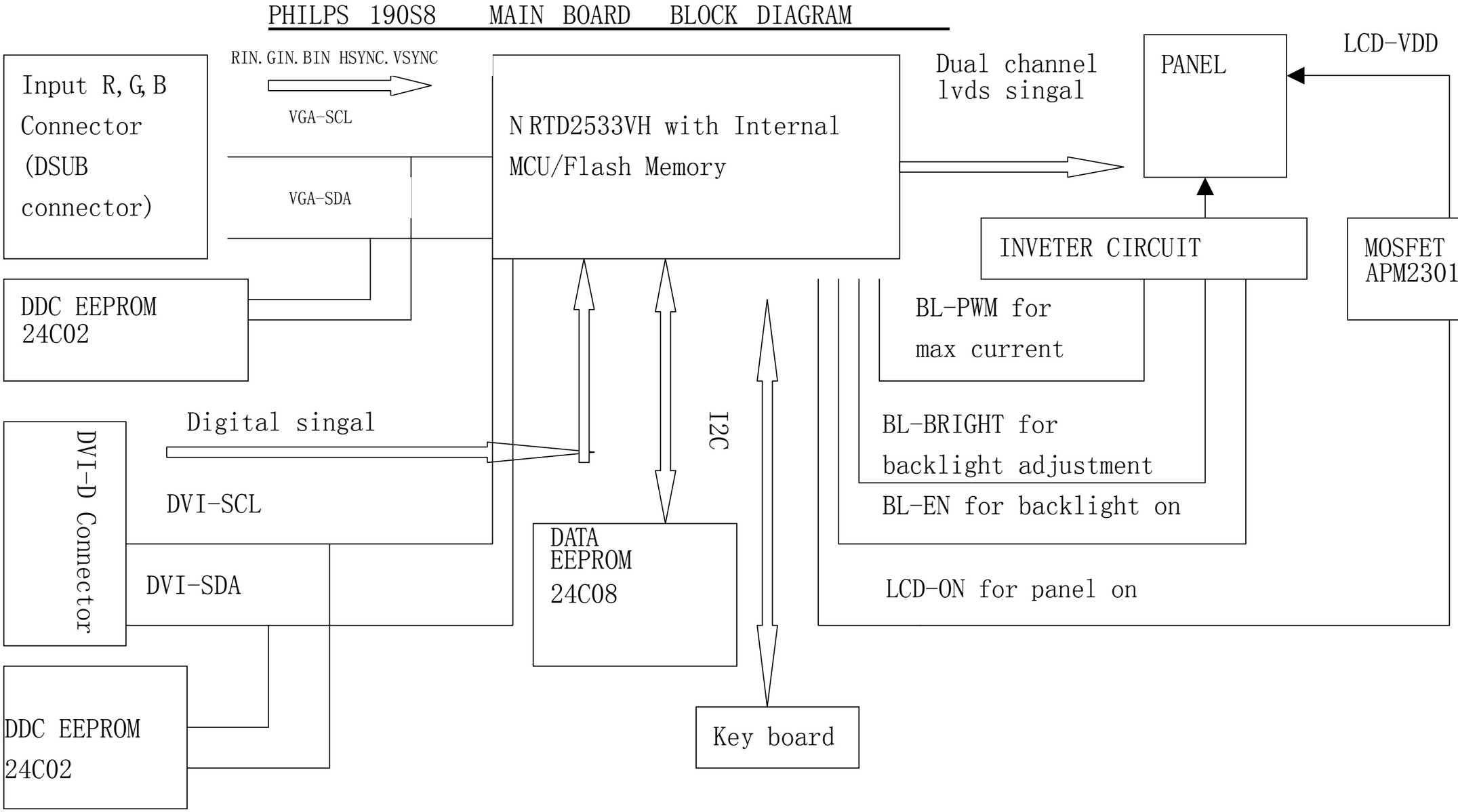
this page presents problems that could be made by LCD panel.
It is not necessary to repair circuit board. Simply follow the mechanical instruction on this manual to eliminate failure by replace LCD panel.

Failure description	Phenomenon
Vertical block defect	
Vertical dim lines	
Vertical lines defect (Always bright or dark)	
Horizontal block defect	
Horizontal dim lines	
Horizontal lines defect (Always bright or dark)	
Has bright or dark pixel	
Polarizer has bubbles	
Polarizer has bubbles	
Foreign material inside polarizer. It shows liner or dot shape.	
Concentric circle formed	
Bottom back light of LCD is brighter than normal	
Back light un-uniformity	
Backlight has foreign material. Black or white color, liner or circular type	

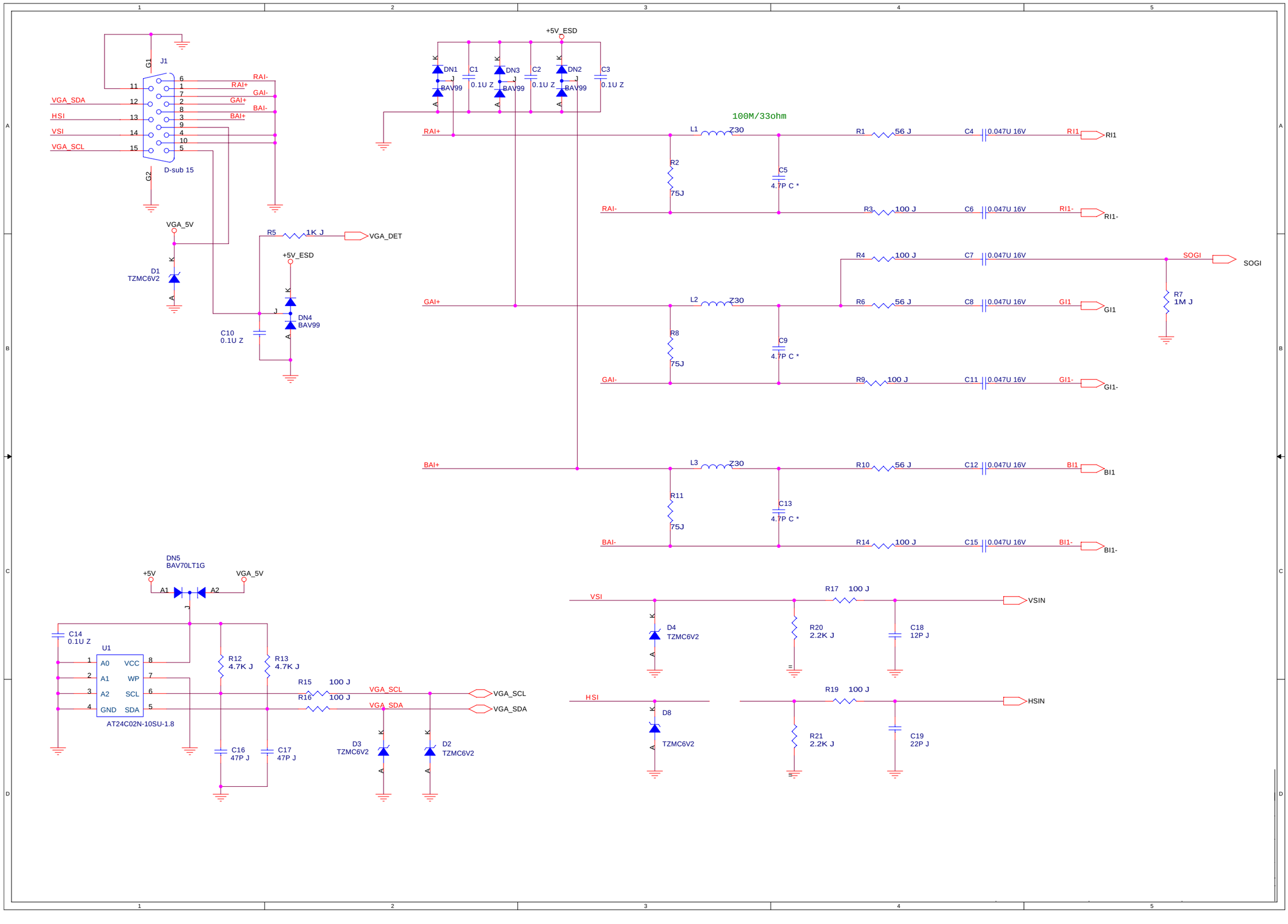
Wiring Diagram



Block Diagram

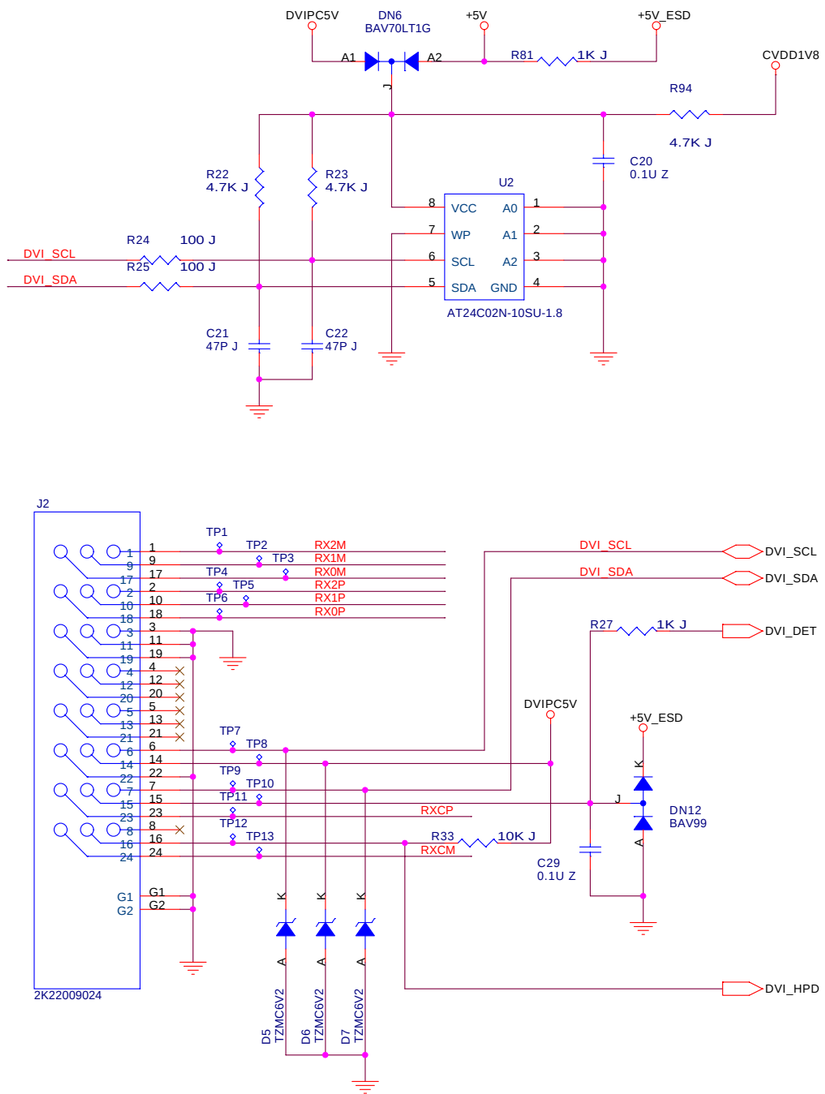


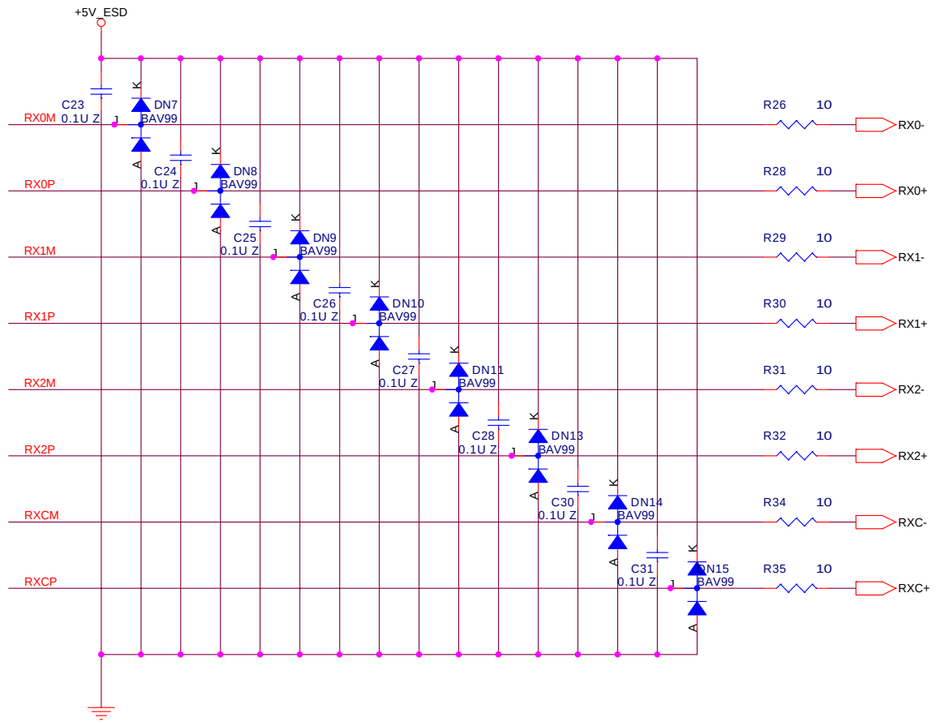
Scaler Diagram-1



J1	A1
R5	A2
DN1	A2
C1	A2
DN3	A2
C2	A3
DN2	A3
C3	A3
R2	A3
L1	A3
C5	A3
R1	A4
R3	A4
C4	A4
C6	A4
D1	B1
C10	B1
DN4	B2
R8	B3
L2	B3
C9	B3
R9	B4
R4	B4
R6	B4
C7	B4
C8	B4
C11	B4
R7	B5
C14	C1
U1	C1
DN5	C1
R12	C1
R13	C1
D4	C3
R11	C3
L3	C3
C13	C3
R20	C4
R17	C4
R10	C4
R14	C4
C18	C4
C12	C4
C15	C4
C16	D1
C17	D1
R15	D2
R16	D2
D3	D2
D2	D2
D8	D3
R18	D3
R21	D4
R19	D4
C19	D4

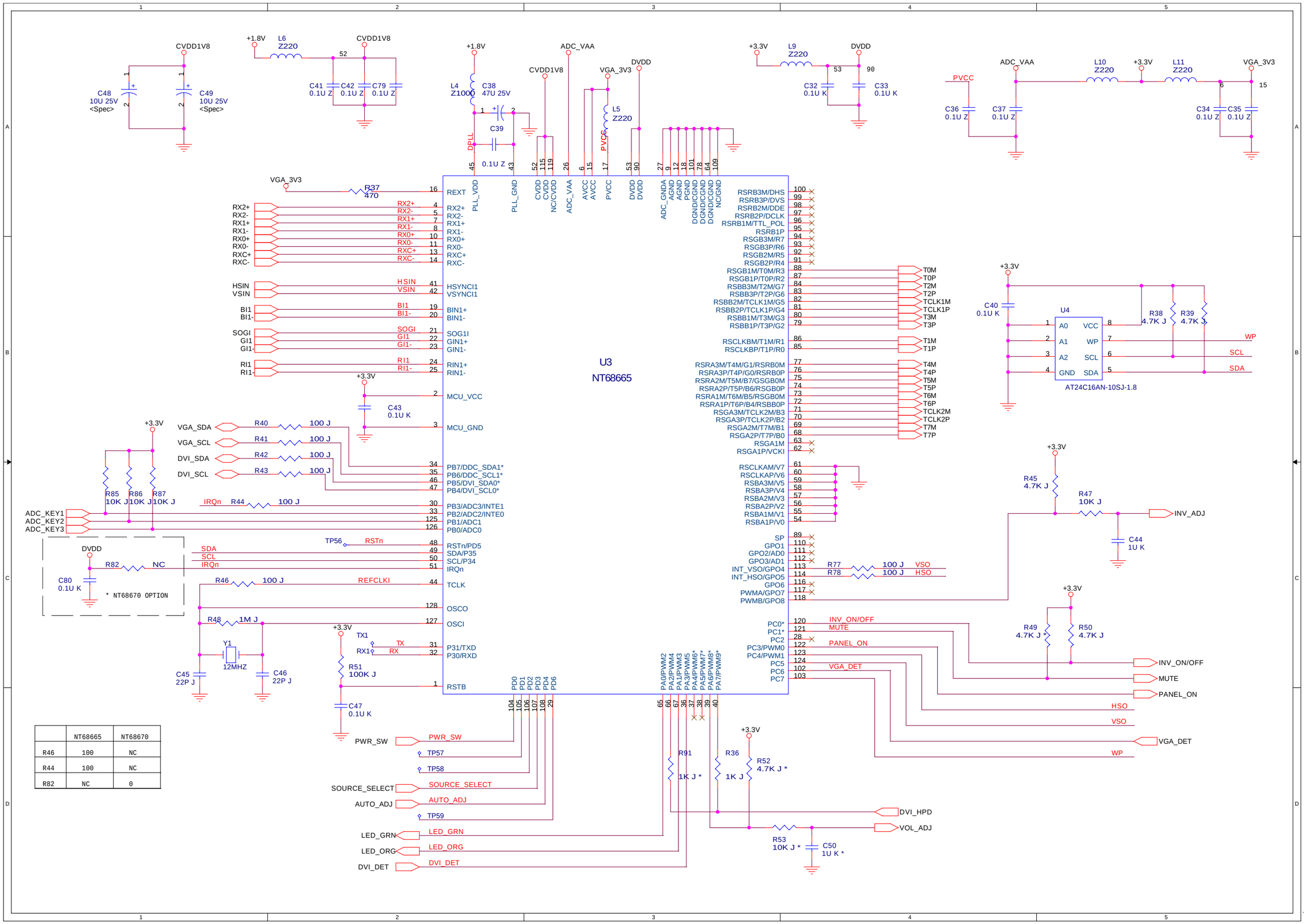
Scaler Diagram-2





R22	A1
R24	A1
DN6	A2
R81	A2
R94	A2
C20	A2
R23	A2
U2	A2
C23	A3
R25	B1
C21	B1
J2	B1
C22	B2
R27	B2
DN7	B3
C24	B3
DN8	B3
C25	B3
DN9	B4
C26	B4
DN10	B4
C27	B4
DN11	B4
C28	B4
DN13	B4
R26	B5
R28	B5
R29	B5
R30	B5
R31	B5
R32	B5
D5	C1
DN12	C2
R33	C2
C29	C2
D6	C2
D7	C2
C30	C4
DN14	C4
C31	C4
DN15	C4
R34	C5
R35	C5

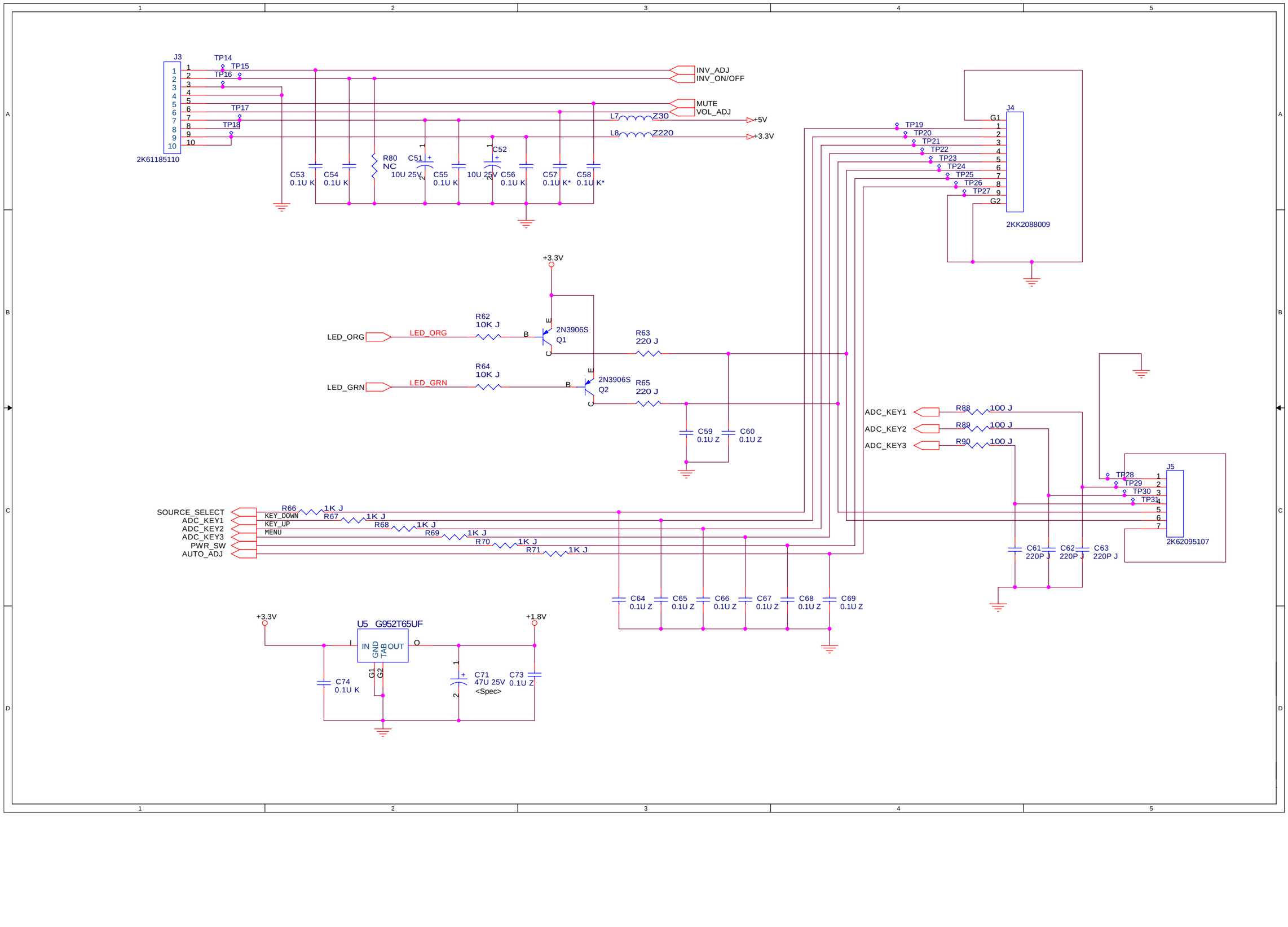
Scaler Diagram-3



	NT68665	NT68670
R46	100	NC
R44	100	NC
R82	NC	0

C48	A1
C49	A1
C38	A2
C39	A2
C41	A2
C42	A2
C79	A2
L4	A2
L6	A2
R37	A2
U3	A2
L5	A3
L9	A3
C32	A4
C33	A4
C36	A4
C37	A4
C34	A5
C35	A5
L10	A5
L11	A5
C43	B2
R40	B2
R41	B2
R42	B2
C40	B4
R38	B5
R39	B5
U4	B5
C45	C1
C46	C1
C80	C1
R44	C1
R46	C1
R48	C1
R82	C1
R85	C1
R86	C1
R87	C1
Y1	C1
R43	C2
R51	C2
R49	C4
R77	C4
R78	C4
C44	C5
R45	C5
R47	C5
R50	C5
C47	D2
R36	D3
R52	D3
R53	D3
R91	D3
C50	D4

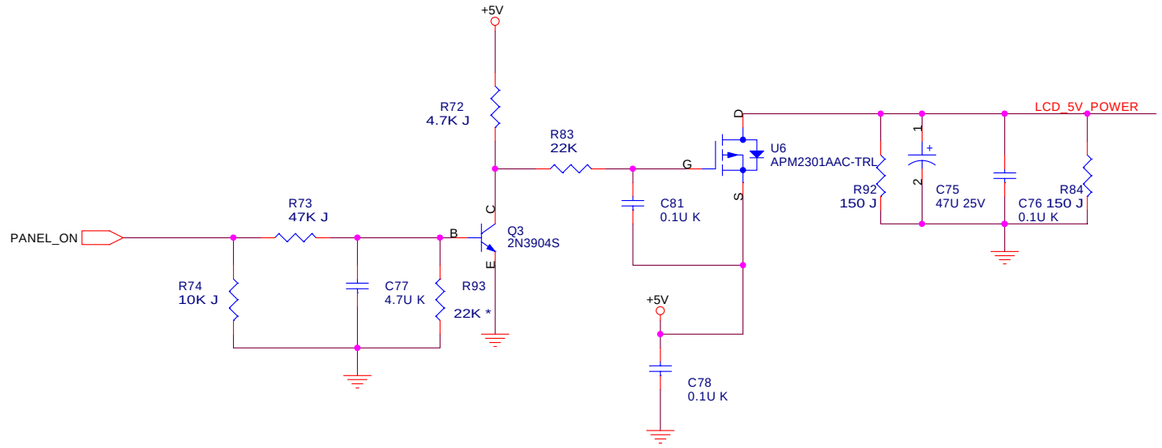
Scaler Diagram-4



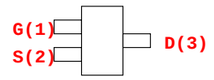
J3	A1
R80	A2
C51	A2
C52	A2
C53	A2
C54	A2
C55	A2
C56	A2
L7	A3
L8	A3
C57	A3
C58	A3
J4	A4
R62	B2
R64	B2
Q1	B3
R63	B3
Q2	B3
R65	B3
R88	B4
R66	C2
R67	C2
R68	C2
R69	C2
R70	C2
C59	C3
C60	C3
R71	C3
C64	C3
C65	C3
C66	C3
C67	C3
R89	C4
R90	C4
C61	C4
C68	C4
C69	C4
J5	C5
C62	C5
C63	C5
U5	D2
C71	D2
C74	D2
C73	D3

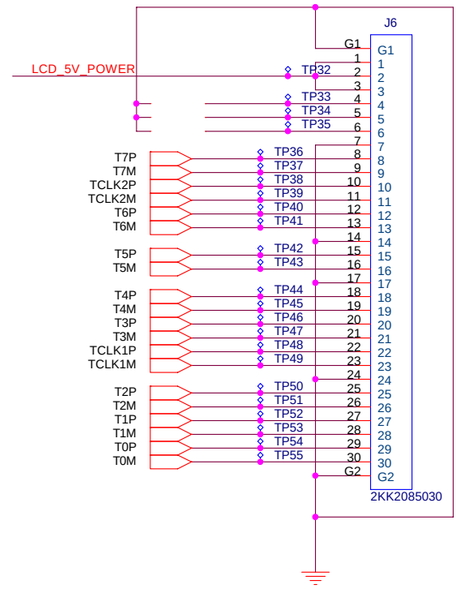
Scaler Diagram-5

R75	A4
R76	A4
R79	A4
J6	A5
R73	B1
R74	B1
R72	B2
U6	B2
R83	B2
C81	B2
Q3	B2
C77	B2
R93	B2
C75	B3
R92	B3
R84	B3
C76	B3
C78	C2

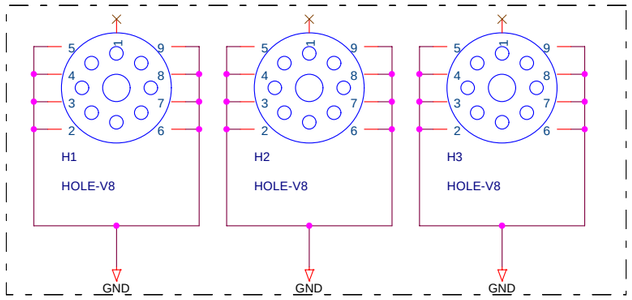


U9 spec.
Vds=-30V, Vgs=+/-12V
Id=-3.5A when ambient temp.=70 degre

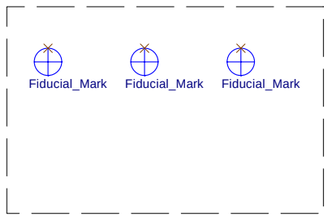




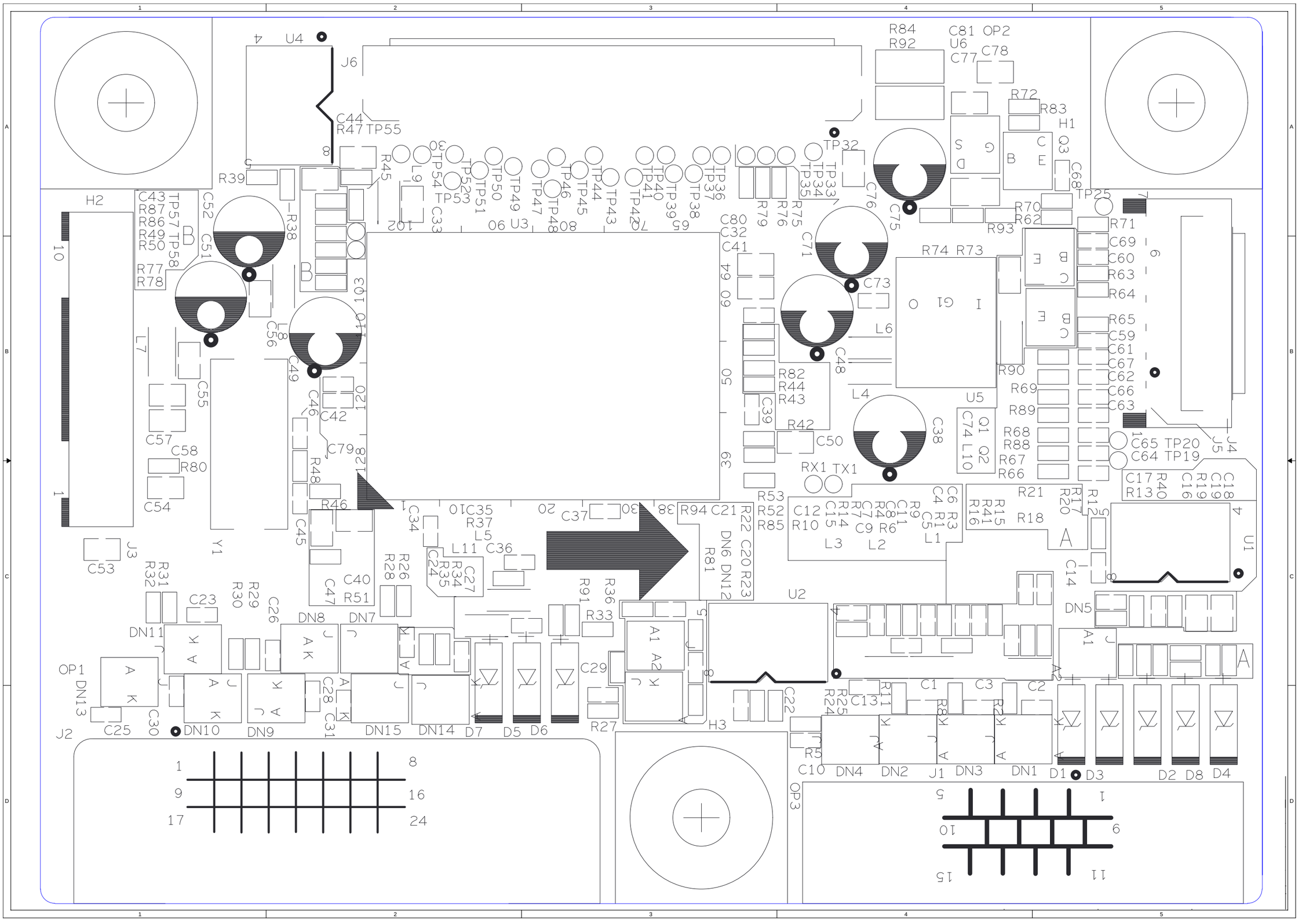
Screw Holes



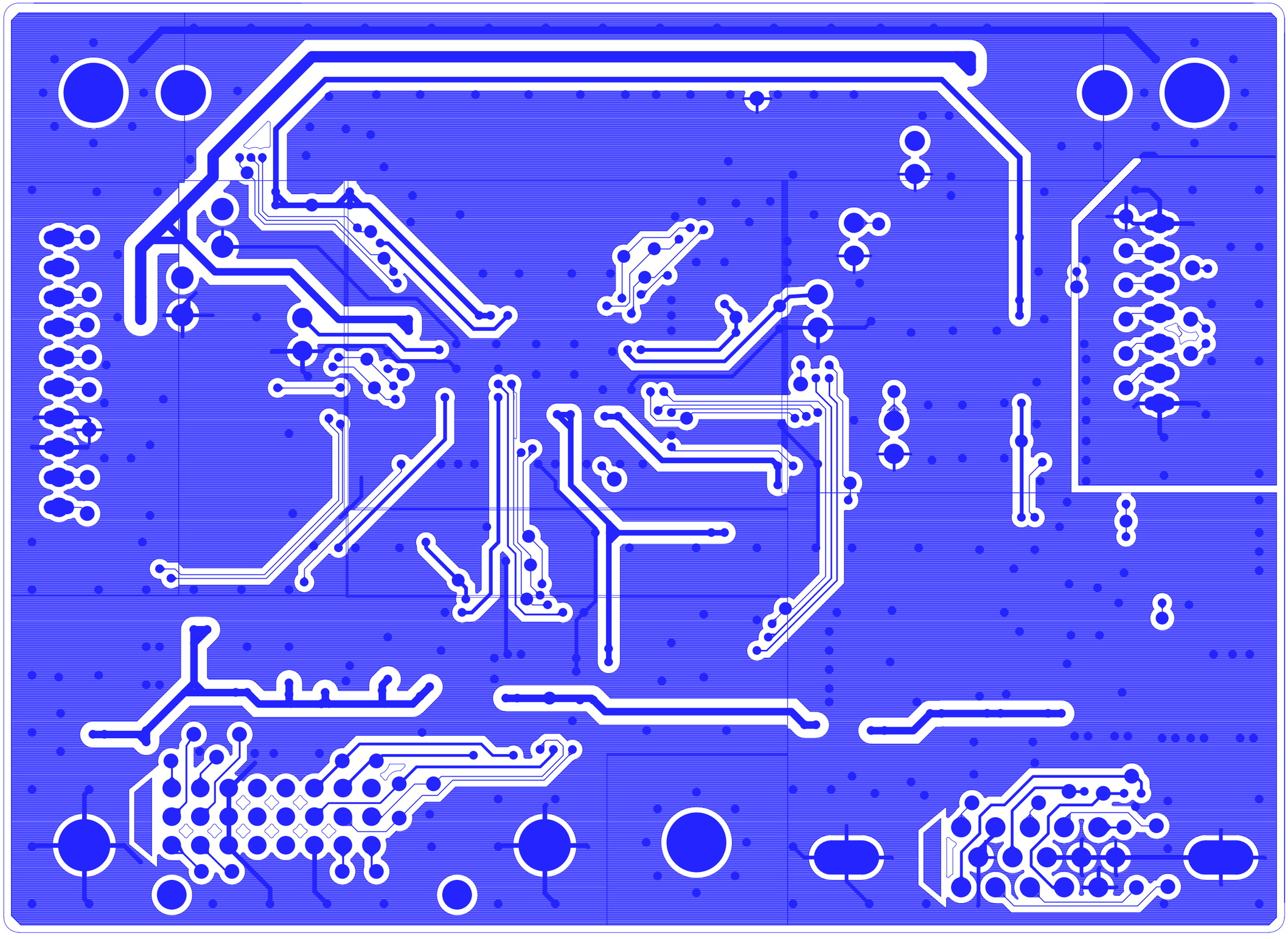
Optical Points



Scaler Board C.B.A.-1



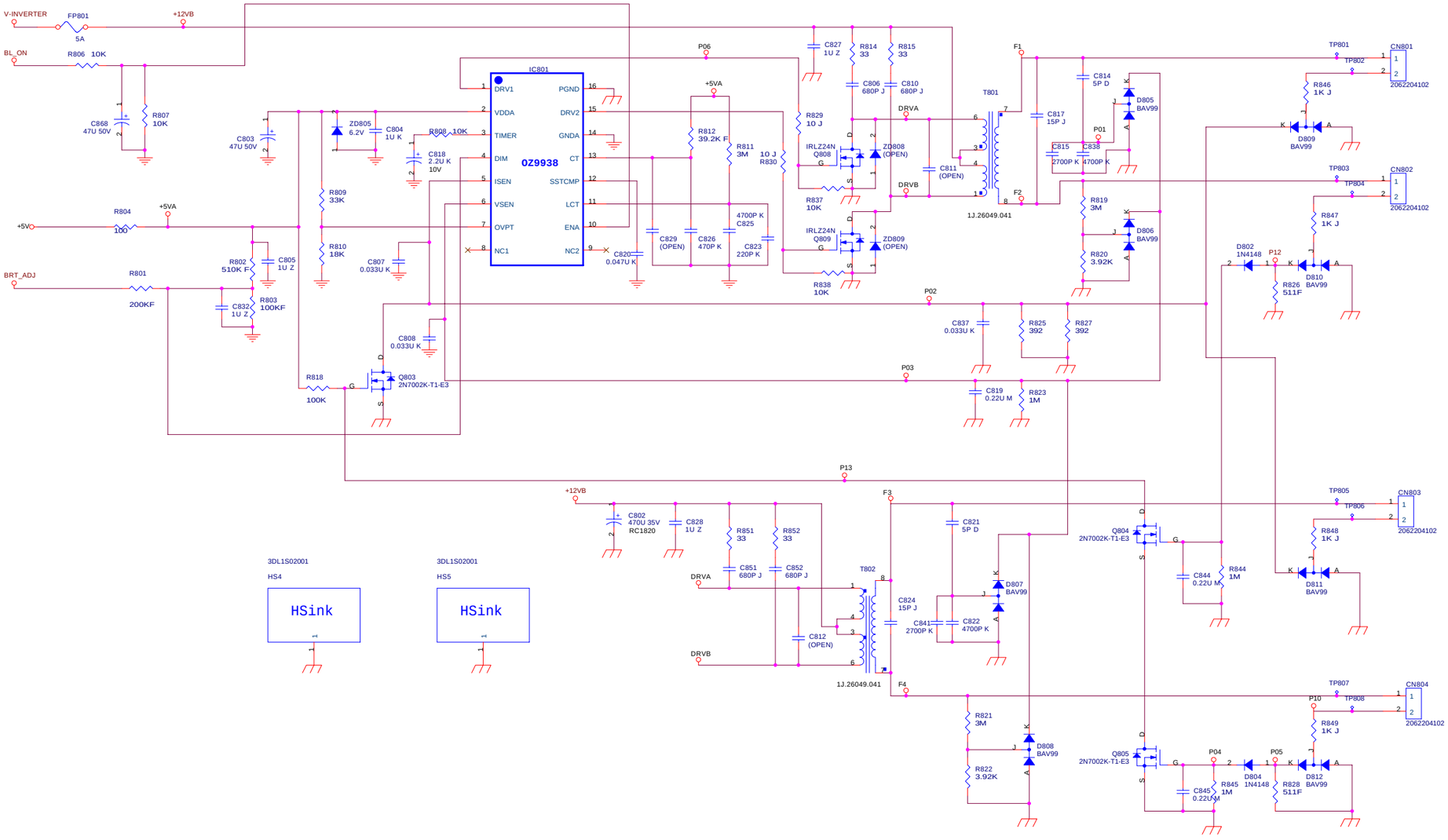
R38	A1
R39	A1
U4	A1
C33	A2
C43	A2
C44	A2
L9	A2
R45	A2
R47	A2
R49	A2
R86	A2
R87	A2
Y1	B1
C42	B2
C46	B2
C49	B2
C79	B2
R50	B2
R77	B2
R78	B2
C32	B3
C39	B3
C41	B3
C80	B3
R42	B3
R43	B3
R44	B3
R53	B3
R82	B3
U3	B3
C38	B4
C48	B4
C50	B4
L10	B4
L4	B4
L6	B4
C34	C2
C35	C2
C36	C2
C40	C2
C45	C2
C47	C2
L11	C2
L5	C2
R46	C2
R48	C2
R51	C2
C37	C3
R36	C3
R37	C3
R52	C3
R85	C3
R91	C3
R40	C5
R41	C5



Power Diagram-1

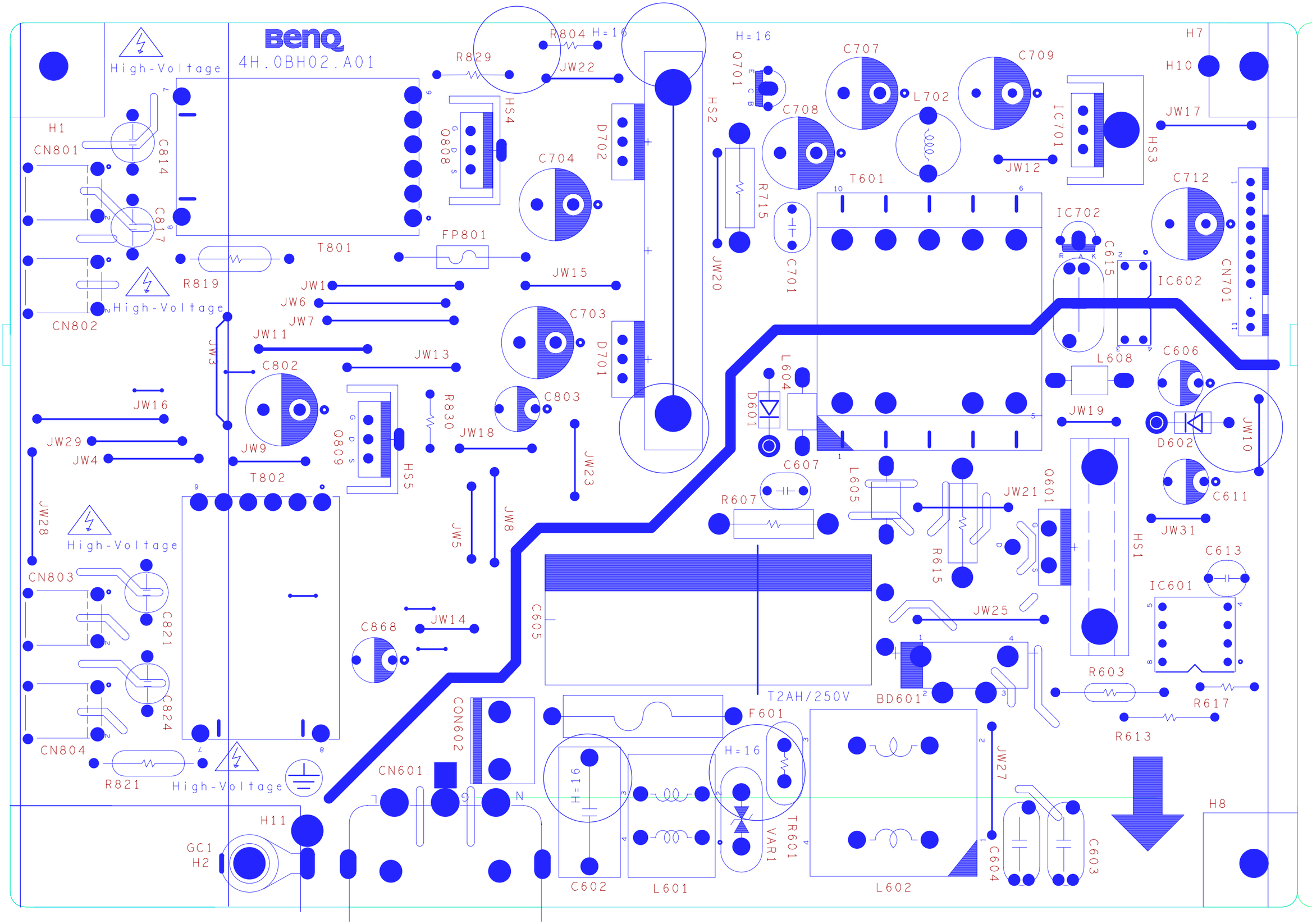
B3: R712, IC702
B5: C612, R620
B6: CN601
C3: R711, R701, R709, R710, R615, C711, IC602
C4: R614, R612, R619, R610, C609, C613, D605
C5: R613, R621, R622, Q602, Q603, C610, D606
C6: CON602, F601, R601, R602, R604, C602
D2: C712, C704, C707, C708, C709, R714, R713, R703, IC701, L702, Q701
D3: C703, D702, T601, L608, Q601
D4: R603, R609, R611, R616, R623, D601, D604, D603, D602, C606, C611, ZD601, L604
D5: IC601, BD601, L602, ZD602, R617, R624
D6: L601, VAR1, C603, C604
E2: R715, ZD701
E3: D701, C701, L605
E4: C607, C605, R607, R608
E6: TR601

Power Diagram-2

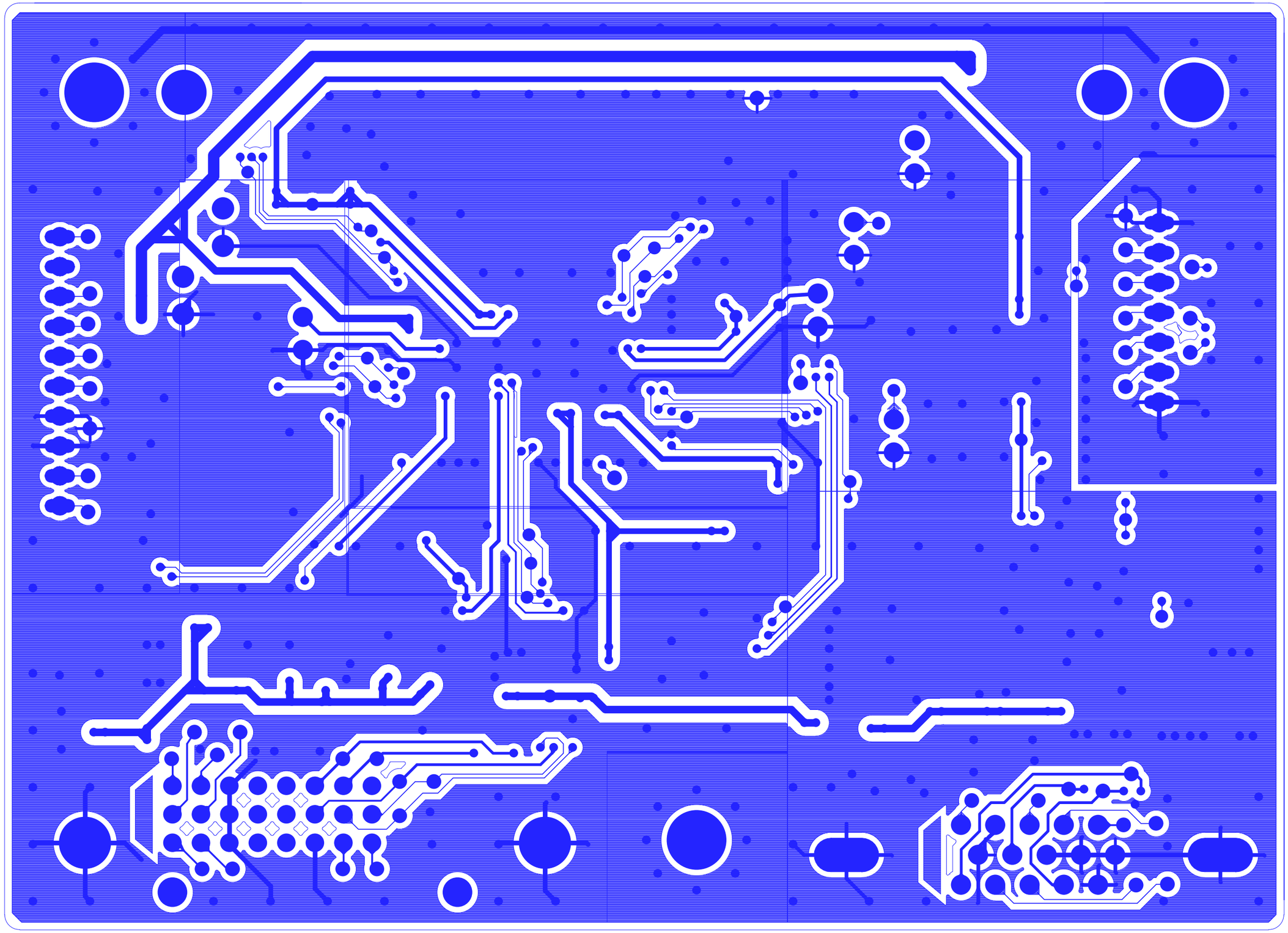


B2: CN804, Q805, R845, R849, C845, D812, D804
B3: D808, R821, R822
C2: CN803, D811, Q804, C844, R844, R848
C3: C816, C821, C822, C841, C824, C812, C852, R852, R823, T802, D807
C4: R851, C851, C828, C802
C5: Q803, R818
D2: CN801, CN802, D809, D810, D805, D806, R826, R846, R847
D3: T801, R814, R815, R819, R820, R825, R827, R829, R837, R838, R830, C837, C811, C910, C806, C827, Q808, Q809, C814, C815, C838, C817, ZD808, ZD809
D4: IC801, R811, R812, R808, C823, C825, C826, C829, C820, C808, C818
D5: C807, C804, R809, R810, C803, C805, R802, C832, R807, C868, R804, R801, R806, FP801, ZD805

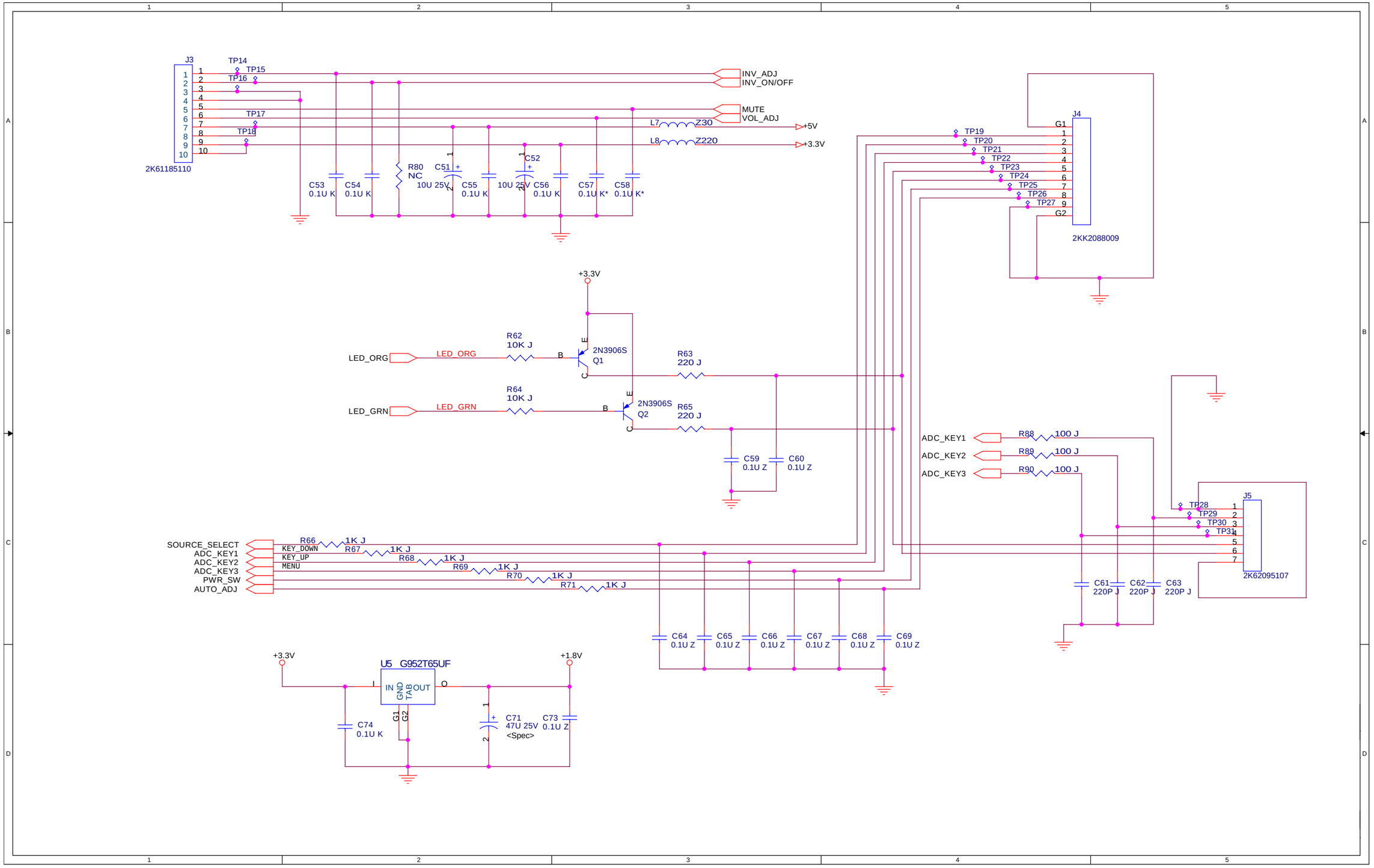
Power Board C.B.A.-1



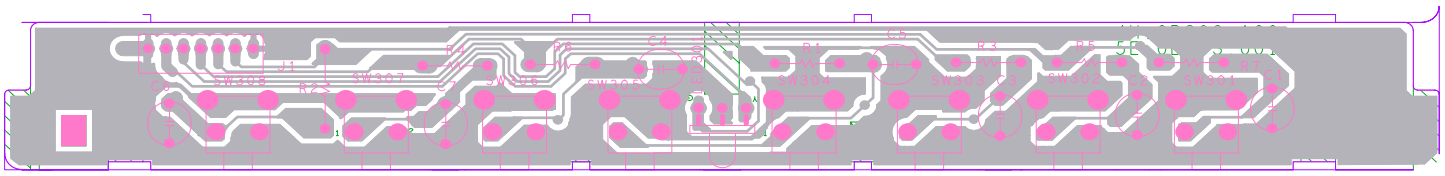
Power Board C.B.A.-2



Control Diagram



J3	A1
R80	A2
C51	A2
C52	A2
C53	A2
C54	A2
C55	A2
C56	A2
L7	A3
L8	A3
C57	A3
C58	A3
J4	A4
R62	B2
R64	B2
Q1	B3
R63	B3
Q2	B3
R65	B3
R88	B4
R66	C2
R67	C2
R68	C2
R69	C2
R70	C2
C59	C3
C60	C3
R71	C3
C64	C3
C65	C3
C66	C3
C67	C3
R89	C4
R90	C4
C61	C4
C68	C4
C69	C4
J5	C5
C62	C5
C63	C5
U5	D2
C71	D2
C74	D2
C73	D3



HUDSON 8 -190S8 & 190V8
GENERAL PRODUCT
SPECIFICATION

DSUB x 1 + DVI-D x1 INPUTS; DVI-D can be installed optionally

- 190S8 is dual input product and 190V8 is analog input product, detail refer to SKU.

. AUTO PICTURE ADJUSTMENT

. 11 FACTORY PRESET MODES AND 45 PRESET MODES WHICH CAN BE RECOVERED TO PRESET MODES, 12 USER MODES

. USER FRIENDLY OSD DISPLAY FOR MODE IDENTIFICATION /ADJUSTMENT

. MAX. RESOLUTION 1280 x 1024 NON-INTERLACED AT 76 HZ

. 19" COLOR TFT LCD FLAT PANEL

. FULL RANGE POWER SUPPLY 90 – 264 VAC/50&60Hz

. CE ENVIRONMENTAL POLICY

. ANTI-GLARE TO REDUCE LIGHT REFLECTION

. POWER MANAGEMENT CAPABILITY

. SOG SUPPORT

. TCO' 03 for WW and non-TCO for China model

.Windows Vista Premium Logo Certification for 190S8 Dual models
Windows Vista Basic Logo Certification for 190V8 Analog models.

.HDCP support for DVI inputs

.USB PLUG 2.0 SUPPORT (Not required for 190S8)

SMARTImage

SMARTContrast: 3000:1(Typical)

. SMART CONTROL & SMART MANAGEMENT lite REQUIREMENT
--Color enhancement capable & Include 128K flash and color engine

FGA, FACTORY GAMMA Alignment

.FC, FACTORY CALIBRATION FUNCTION REQUIREMENT

.POWER ON PHILIPS LOGO REQUIREMENT

.WEEE REQUIREMENT

.RoHS REQUIREMENT

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1 FOREWORD

This specification describes a 19" SXGA multi-scan color TFT LCD monitor with maximum resolution up to 1280 x 1024 /75 Hz non-interlaced.
All optical characteristics (including WHITE-D, Brightness, and so on) are determined according to panel specification after warming up approximate 30 minutes that brightness stability is optimal, and follow strictly after panel specification.

2 PRODUCT PROFILE

This display monitor unit is a color display monitor enclosed in PHILIPS styling cabinet which has an integrated tilt base.

2.1 LCD

Priority : 1. LPL/HSD 2. AUO
Type : TN
Supplier offer the Panel specification.
Panel incoming specification: Follow Philips' specification.

LPL

Type NR. : LM190E08-TLL1/TLL4 (TN)
Resolution : 1280x1024 (SXGA)
Outside dimensions :
Pitch (mm) : 0.294 mm x 0.294 mm
Color pixel arrangement : RGB vertical stripes
Display surface : low reflection, antiglare with hard coating
Color depth : 16.7 M colors (6 bits + Hi FRC)
Backlight : CCFL edge light system
Active area(WxH) :
View angle (CR>10) : 160/160(typ) for H/V
Contrast ratio : 800:1(typ)
White luminance : 300 nits(typ)
Color gamut : 72%
Gate IC : Lusem/Toshiba
Source IC : Lusem/Magna
Response time : 5 ms

HSD

Type NR. : HSD 190MEN3-A (TN)
Resolution : 1280x1024 (SXGA)
Outside dimensions :
Pitch (mm) : 0.294 mm x 0.294 mm
Color pixel arrangement : RGB vertical stripes
Display surface : low reflection, antiglare with hard coating
Color depth : 16.7 M colors (6 bits + Hi FRC)
Backlight : CCFL edge light system
Active area(WxH) :
View angle (CR>10) : 160/160 (typ) for H/V
Contrast ratio : 1000:1 (typ)
White luminance : 300 nit (typ)
Color gamut : 72%
Gate IC : Cheertek
Source IC : Cheertek
Response time : 5 ms

AUO

Type NR : M190EG02 v4 (TN)
Resolution : 1280x1024 (SXGA)
Outside dimensions : 396 (H) x 324 (V) x 16.3 (D) (typ)
Pitch (mm) : 0.294 mm x 0.294 mm
Color pixel arrangement : RGB vertical stripes
Display surface : low reflection, antiglare with hard coating
Color depth : 16.7 M colors (8 bits) (RGB 6-bit data + HiFRC data)
Backlight : CCFL edge light system
Active area(WxH) : 376.32 x 301.06
View angle (CR>10) : 160/160(typ) for H/V
Contrast ratio : 800:1(typ)
White luminance : 300 nits(typ)
Color gamut : 72%
Gate IC : RM7601, MN863550
Source IC : RM7601, MN863550
Response time : 5 ms

2.2 Scanning frequencies

Hor. : 30 – 83 K Hz
Ver.: 56 - 76 Hz
Video dot rate: 165 MHz (140MHz for EDID)
Power input: 90-264 V AC, 50/60 2 Hz
Power consumption : : 36 W typical

Functions:

(1) D-SUB analog R/G/B separate inputs, H/V sync separated, Composite (H+V) TTL level, SOG sync

(2) DVI digital Panel Link TMDS inputs

2.3 Ambient temperature: 0 C - 40 C

3 Electrical characteristics

3.1 Interface signals

1). D-Sub Analog

Input signal : Video, Hsync., Vsync

Video : 0.7 Vp-p, input impedance, 75 ohm @DC

Sync. : Separate sync TTL level , input impedance 2.2k ohm terminate
Hsync Positive/Negative
Vsync Positive/Negative
Composite sync TTL level, input impedance 2.2k ohm terminate (Positive/Negative)
Sync on green video 0.3 Vp-p Negative (Video 0.7 Vp-p Positive)

2). DVI-D Digital

Input signal: Single TMDS link (Three channels: RX0-/+, RX1-/+, RX2-/+)

3). Audio (Not required in this product)

Input signal: 1000 mVrms

Loudspeaker (Impedance: 16 Ohm +/-15%): 2W+2W stereo for RMS Power

Frequency range: 360Hz - 20KHz

Headphone connection will mute speakers

4). USB PLUG 2.0 (Not required in this product)

Input signal: Upstream input (V_{BUS}, D+, D-, GND) via USB-B receptacle.

Output signal: Downstream output (V_{BUS}, D+, D-, GND) through USB-A receptacle

3.2 Interface

3.2.1 D-Sub Cable

Length : 1.8 M +/- 50 mm
Connector type : D-Sub male with DDC2B pin assignments.

3.2.2 DVI Cable

The input signals are applied to the display through DVI-D cable.
Length. : 1.8 M +/- 50 mm
Connector type. : DVI-D male with DDC-2B pin assignments
White connector thumb-operated jackscrews

3.3 Timing requirement

Factory Preset mode definition :
1. Perfect FOS while presenting all required timings.
2. Required timings need to be specified in User's Manual

Preset mode definition :
1. Need to support those timings.
2. Perfect FOS after auto adjustment.

User mode
1. Can save those timing that not in Preset mode and can be showed (not over scalar or Panel spec.)
2. It needs to reserve the 12 timings space in memory size.

3.3.1 Mode storing capacity

Factory preset modes : 11
Preset modes : 45
User define modes : 12

Note: 1. Screen displays perfect picture at 11 factory-preset modes.
2. Screen displays visible picture with OSD warning when input modes are the 45 preset modes

3.3.2 Factory preset modes (11 modes)
Factory modes and preset modes are defined in the enclosed timing table file

	H.Freq. (KHz)	Mode	Resolution	V.Freq. (Hz)
1	31.469	IBM VGA 3H	720x400	70.087
2	31.469	IBM VGA 12H	640x480	59.94
3	35	MACINTOSH	640x480	67
4	37.5	VESA	640x480	75
5	35.156	VESA	800x600	56.25
6	37.879	VESA	800x600	60.317
7	46.875	VESA	800x600	75
8	48.363	VESA	1024x768	60.004
9	60.023	VESA	1024x768	75.029
10	63.981	VESA	1280x1024	60.02
11	79.976	VESA	1280x1024	75.025

3.4 Horizontal scanning

Sync polarity : Positive or Negative
Scanning frequency : **30 – 83 K Hz**

3.5 Vertical scanning

Sync polarity : Positive or Negative
Scanning frequency : **56 - 76 Hz**

3.6 Power input connection

Power cord length : 1.8 M
Power cord type : 3 leads power cord with protective earth plug.

3.7 Pow er management

The monitor must comply with the Microsoft On Now specification, and meet EPA requirements.

Mode	HSYNC	VSYNC	Video	Pwr-cons.	Indication	Rec. time
Power-On	On	On	active	36 W typical	Green LED	--
Off	Off	Off	blanked	< 1 W	Amber LED	< 3 s
DC Power Off			N/A	< 1 W	LED Off	

3.8 Analog Display identification

In accordance with VESA Display Channel Standard Ver.1.0 and DDC 2B capability

3.9 DVI- D Display identification

In accordance with DVI requirement (DDWG digital Visual Interface revision 1.0) use DDC-2B, DDC/CI, and EDID V1.3

3.10 USB Plug support (Not required in 190S8)

Connect the upstream port of the monitor to host PC's USB port via USB cable,
Then attach external device to the downstream port of the monitor.
Check if the device can work properly.

3.11 DDC /CI Support

In accordance with VESA DDC/CI and MCCS ver.2.0, the monitor should be workable with Protrait Display Tune at least.

3.12 EDID

Data for EDID & .inf file

1	User visible strings on .inf file	Philips 190S (19inch LCD MONITOR 190S8)
2	Manufacturer ID (EDID data)	PHL
3	Product ID, "xxxx" 4 codes	MSB(byte 12): 08
		LSB (byte 11): 59
4	maximum resolution	1280x1024
5	Horizontal Frequency Range	30~83 KHz
6	Vertical Frequency Range	56~76Hz
7	Monitor Name (13 characteries max.)	Philips 190S

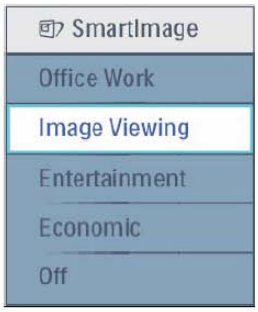
3.13 Hot-key definition

3.14 Smart Bright --Dy namic Brightness Control (DBC) (Not required for this product)
DCR controlled by Scaler
DCR function ON , contrast ≧ 2X original contrast specification.

3.15 Smart contrast (Dy namic contrast ratio)
Smart Contrast is a kind of dynamic backlight control.
This function changes
the panel backlight dynamically according to the frame brightness histogram.
The contrast ratio is 3000:1 (ty pical) .

3.16 Smart image

3.16.1 Smart Image OSD outlook



3.16.1.1 Position
Pressing the "Smart Image" button, the position is in the bottom center of the screen.

3.16.1.2 Smart Image Logo & Banner
As design to keep the LightFrame logo at header but change the name to "SmartImage" with bitmap format.

3.16.1.3 Icon of each profile
Each profile will use text instead of icon & text before.

3.16.1.4 User Operation Procedure

A. 5 different modes are switched to next in the sequence from 1 to 5 then back to 1 while pressing this button: 1) Office Work 2)
B. The FOS optimization will be changed in real time by which profile to be scrolled, users don't need to confirm to enable.
C. The Smart Image OSD will remain on screen for 5 seconds after user last action. Or user can also press [MENU] to close the Smart Image OSD immediately.
D. Except using [MENU] button to scroll down profile. If Smart Image OSD already launched onscreen. User is allowed to use up/down key to choose profile and press [MENU] to confirm selection and close the Smart Image OSD.
E. If the model has multiple inputs including VGA and DVI, each input has their own set of profiles. When user switch input, the profile to be applied will also change.
F. Each input can memorize their individual "Smart Image" profile status.
For example, Smart Image is on with "Office" profile at VGA input, when switch to DVI input, the Smart Image will revert to previous profile of DVI.
In the input switching process the "Smart Image" OSD will also show up to present which profile is selected if "Smart Image" is enabled at that input.

The Smart Image status will also be stored after the monitor is resumed from AC on/off or power switch on/off.

3.16.1.5 Linkage betw een Smart Image OSD and main OSD

A. Settings within main OSD have linkage with Smart Image OSD.
i. Brightness

ii. Contrast
iii. Color Temperature

B. Because each preset profiles will define default setting of these 3 parameters. Users can understand what is the value of that in preset profile by open the main OSD.

C. When any SmartImage Lite profile had been enabled. The parameters in main OSD are still available for user to adjust. But these adjustments are temporary only. If users switch to another profile and then go back. The setting in main OSD will show preset values of that SmartImage profile enabled.

3.16.1.6 Profile Definitions (system integrators to input at design stages)

A. Office Work

i. Purpose: Design for general office application, like word processing, Spreadsheet and email. The screen is dominated by text.
ii. Enhancement point:
1. A little sharpness for increasing the details of e.g. an excel grid.
No other type of enhancement as it won't bring value.
2. Color temperature remains in 6500°K.
3. Brightness level should be 70%.
4. Smart Response set to “Off”.
5. Smart Contrast set to “Off”.

B. Entertainment

i. Purpose: Design for video application, Like Microsoft Media Player or Real Player. The screen is dominated by video.
ii. Enhancement Point:
1. Dynamic contrast enhancement by histogram analysis (DLC) should be implemented.
2. Sharpness enhanced 90%.
3. Color enhancement set as the same with Video.
4. Color temperature set to 7500° (Based on final PQ settings) (if higher)
5. Brightness level sets to maximum.
6. SmartResponse set to “High”.(N/A for this model)
7. Gamma Table turn off to achieve
8. Fastest response time. (N/A for this model)
9. Smart Contrast set to “On”

C. Image Viewing

i. Purpose: Design for image viewing application, especially in slide show. The screen is dominated by picture. Powerpoint presentation could use this profile also.
ii. Enhancement Point:
1. Dynamic contrast enhancement by histogram analysis (DLC) should be off.
2. Sharpness and color to be enhanced 75%.
3. Color temperature 6500°K-
4. Brightness level sets to maximum.
5. Smart Response set to “Off”. (N/A for this model)
6. Smart Contrast set to “Off”.

D. Economy

i. Purpose: Adjust brightness level for reducing power consumptions
ii. No optimization by Smart Image.
iii. Design:
1. Brightness level set to 70%, a little higher brightness level than laptop PC, fine tune brightness level before DVT exit.
2. Color temperature set to 6500K.
3. Gamma Table is turn on.

E. Off

i. Purpose: No optimization by SmartImage.

ii. Design:

1. This will follow user OSD setting. If any change by user, it will be saved. When switch back from other SmartImage profiles, it will go back to last saved setting.
2. Gamma Table is turn on to reduce bad color tracking.

3.16.1.7 Demo mode

A. Purpose: Built-in demo mode for sales in-store demo.

B. Design:

i. Dynamically split screen to 2 vertical frames with one vertical white line. The line width is 2 pixels. The left frame will be enhanced by SmartImage and right frame remains original performance.

ii. There is OSD showing “SmartImage On” in left frame and “SmartImage Off ” in right frame.

iii. The OSD word color is white with transparent background.

C. The demo profile will be “entertainment profile setting.

D. Hot keys to trigger:

Press [SmartImage] 3 seconds or more to trigger the demo mode.

When demo mode is On, press 3 seconds or more to turn off the demo mode.

When the demo mode is enabled, the blue LED will flash until demo mode disabled.(N/A for this model)

3.17 Smart Response (Not required for this product)
Gray to Gray Response time : ?ms (max.)

4 Visual characteristics

4.1 Test conditions

Unless otherwise specified, this specification is defined under the following conditions.

(1) Input signal : As defined in 3.3, 1280 x 1024 non-interlaced mode (1280 x 1024@75Hz), signal sources must have 75 ohm output impedance.

(2) Luminance setting: controls to be set to 300 nits (typical) with full screen 100 % duty cycle white signal

(3) Warm up: more than 30 minutes after power on with signal supplied.

(4) Ambient light: 400 -- 600 lux.

(5) Ambient temperature: 20 ± 5 C

4.2 Brightness
To follow Panel specification.

4.3 Image size

Actual display size 376.3 x 301.1 mm

4.4 Brightness uniformity

Set contrast at 100% and turn the brightness at 100%.

Apply the Fig 1, it should comply with the following formula:

$$\frac{B_min}{B_max} \times 100\% > 75\%$$

Where B_max =Maximum brightness
B_min = Minimum brightness

4.5 Check Cross talk (S)

Apply Pattern 2. Set contrast and brightness at 100 %.
Measure YA. Then output Pattern 3 and measure YB.
the cross talk value :

$$\frac{ABS(YA - YB)}{YA} \times 100\% < 1.5\ \%$$

4.6 White color adjustment

There are seven factory preset white color 11500K, 9300K, 8200K, 7500K, 6500K, sRGB, 5000K

Apply full gray64 pattern, with brightness in 100 % position and the contrast control at 50 % position.
The 1931 CIE Chromaticity (color triangle) diagram (x ,y) coordinate for the screen center should be:

Product specification

CIE coordinates	(x,y)	
11500K	x = 0.272 ± 0.02 y = 0.283 ± 0.02	
9300K	x = 0.283 ± 0.02 y = 0.297 ± 0.02	
8200K	x = 0.292 ± 0.02 y = 0.307 ± 0.02	
7500K	x = 0.299 ± 0.02 y = 0.315 ± 0.02	
6500K/sRGB	x = 0.313 ± 0.02 y = 0.329 ± 0.02	
sRGB	x = 0.313 ± 0.02 y = 0.329 ± 0.02	
5000K	x = 0.346 ± 0.02 y = 0.359 ± 0.02	

Production alignment spec.

CIE coordinates	(x,y)	
11500K	x = 0.272 ± 0.005 y = 0.283 ± 0.005	
9300K	x = 0.283 ± 0.005 y = 0.297 ± 0.005	
8200K	x = 0.292 ± 0.005 y = 0.307 ± 0.005	
7500K	x = 0.299 ± 0.005 y = 0.315 ± 0.005	
6500K/sRGB	x = 0.313 ± 0.005 y = 0.329 ± 0.005	
sRGB	x = 0.313 ± 0.005 y = 0.329 ± 0.005	
5000K	x = 0.346 ± 0.005 y = 0.359 ± 0.005	

Quality Inspection specification:

CIE coordinates	(x,y)	
9300K	x = 0.283 ± 0.015 y = 0.297 ± 0.015	
6500K/sRGB	x = 0.313 ± 0.015	

	y = 0.329 ± 0.015	
sRGB	x = 0.313 ± 0.015 y = 0.329 ± 0.015	
9300K	x = 0.283 ± 0.015 y = 0.297 ± 0.015	
6500K/sRGB	x = 0.313 ± 0.015 y = 0.329 ± 0.015	
sRGB	x = 0.313 ± 0.015 y = 0.329 ± 0.015	

5 Mechanical characteristics

5.1 Cosmetic - Philips ID

5.2 Mechanical data files - ProE files required

5.3 Location of Philips logo - Per Philips make-up sheet

5.4 Gap betw een panel and front bez el < 0.8 (typ) mm

5.5 Location of Control icons - Per Philips Graphic sheet

5.6 Color for resin/paint - Per Philips make-up sheet

5.7 Resins

RoHS required

WEEE required.

Resin type/selection refer to Project Book Section 7.2 Plastic material.

5.8 If paint is used

RoHS required

WEEE require

If new painting type need to implement, refer to UN-D 1235.

5.9 Plastic mold tooling

Tooling to be designed to minimize cosmetic defects induced by molding process (sink, blush, weld lines, gate marks, ejector marks, etc.). Refer to “TYV61-90007”.

- Painting to cover up cosmetic defects due to molding is strongly discouraged.

5.10 Plastics flammability

All Plastics to be Flame Retardant UL 94-V0 or Better (if monitor weighs less than 18kg; UL94-V0 is OK).

Base / Pedestal to be Flame Retardant UL 94-HB.

All major plastic parts (bezel, back cover, base) need to be molded from same resin.

ABS V0 is allowed to implement in China region for monitor body major plastic parts (bezel, back cover).

Plastic resin type selection should be referred to “TY R83-2-9002-1”.

5.11 Texture/Glossing of housing

The texture area and texture no should follow Philips make-up sheet.

The exterior surfaces shall have a uniform texture.

Philips must approve the mold texturing.

Detail document for texture refer to “UN-D249”, “UN-D 600”.

< = 20 gloss units

5.12 Tilt and swivel base

Tilt angle : -5 +2/-0 (forward)

+20 +3/-0 (backward)

Swivel angle : ±45° (not request for 190S8)

High Adjustment :130mm (not request for 190S8)

- Portrait Display : -1° +1/-0°~+91° +0/-1° CCW (not request for 190S8)

5.13 Kensington Lock

Must meet Kensington_slot.spec “TYE-M0004”.

MMD request metal plate in Kinsington hole.

5.14 Label

Regulatory label / Carton label should follow Philips requirement.

China RoHS label

Detail document refer to Philips Engineering Reference Book.

5.15 Transportation

Transportation standards refer to TYE-M0002.

5.15.1 Transportation packages

Packaging and wrapping shall be sufficient to protect the product against damage or loss during shipment from the supplier to the destination specified in the purchase order. All packaging materials are subject to test and evaluation per TYE-M0002. The cushion material shall be constructed using EPS material.

The doggy hole is requested.

5.15.2 Transportation Test

The overall test refer to TYE-M0002.

Vibration, drop test should be performed at ambient temperature(20°C to 23°C) and relative humidity (40% to 65%).

A. Transportation test specification for all regions except China/India

Package test

1. Random Vibration test
2. Drop test
3. Cold Drop test (for design reference)

Un-package test

1. Half sine shock test (non operation)

B. Transportation test specification for China/India

Package test

1. Random Vibration test

2. Drop test
3. Cold Drop test (for design reference)

Un-package test

1. Sine vibration (operating)
2. Half sine shock test (non operation)

5.16 Pallet / Container loading

Transportation standards refer to TYE-M0002 and UAW-0309.

Air shipment -

Sea container 20'(pallet/slip sheet)

Sea container 40'(pallet/slip sheet)

Sea container 40' High Cube (pallet/slip sheet)

Land 53‘ MEGA Trailer (pallet/slip sheet)

Land 53‘ MEGA Trailer per HQ (pallet/slip sheet)

Truck shipment-

Transportation request for all region except China/India

A. Air shipment
B. Container loading for WW
C. Land 53‘ MEGA Trailer

Transportation request for China and India

A. Container loading for China and India
B. Truck loading

6 Env ironmental characteristics

The following sections define the interference and susceptibility condition limits that might occur between external environment and the display device.

6.1 Susceptibility of display to external environment

Operating

- Temperature : 0 to 40 degree C
- Humidity : 80% max
- Altitude : 0-3658m
- Air pressure : 600-1100 mBAR

Storage

- Temperature : -20 to 60 degree C
- Humidity : 95% max
- Altitude : 0-12192m
- Air pressure : 300-1100 mBAR

Note: recommend at 5 to 35 C, Humidity less than 60 %

6.2 Transportation tests

Refer to 5.15.2

6.3 Display disturbances from external environment

According to IEC 801-2 for ESD disturbances

6.4 Display disturbances to external environment

7 Reliability

7.1 Mean Time Betw een Failures

System MTBF (Including the LCD panel and CCFL) : 50,000 hrs

8 Quality assurance requirements

8.1 A cceptance test

According to MIL-STD-105D Control II level

AQL: 0.4 (major)
1.5 (minor)
(Please also refer to annual quality agreement)
Customer acceptance criteria: UAW0377/00

9 Philips' Flat Panel Monitors Pixel Defect Policy

Philips' Flat Panel Monitors Pixel Defect Policy

BRIGHT DOT DEFECTS	**ACCEPTABLE LEVEL**		
MODEL	**190S8 & 190V8**		
1 lit sub-pixel	3		
2 adjacent lit sub-pixels	1		
3 adjacent lit sub-pixels (one white pixel)	0		
Distance between two bright dots	15mm		
Bright dot defects within 20 mm circle	0		
Total bright dot defects of all type	3		

BLACK DOT DEFECTS	**ACCEPTABLE LEVEL**		
MODEL	**190S8 & 190V8**		
1 dark sub-pixel	5		
2 adjacent dark sub-pixels	2		
3 adjacent dark sub-pixels (one white pixel)	1		
Distance between two black dots	15mm		
Black dot defects within 20 mm circle*	1		
Total black dot defects of all type	5		

TOTAL DOT DEFECTS	**ACCEPTABLE LEVEL**		
MODEL	**190S8 & 190V8**		
Total bright or black dot defects of all type	5		

Fig 1: Measurement locations of Brightness Uniformity

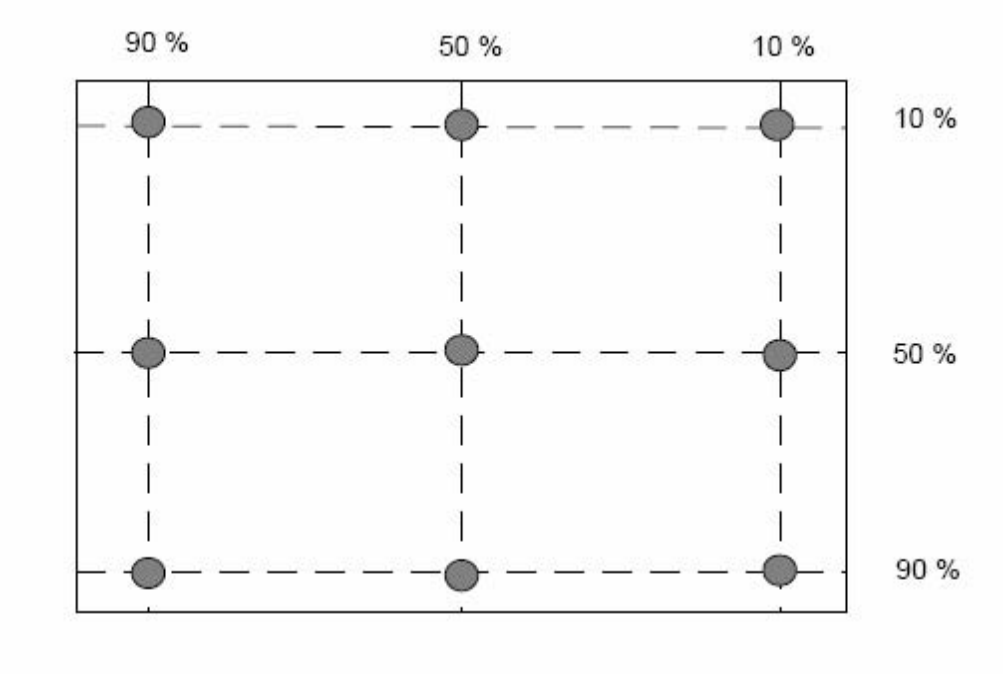


Fig 2: Cross talk pattern
Gray level 46 (64 Gray level)

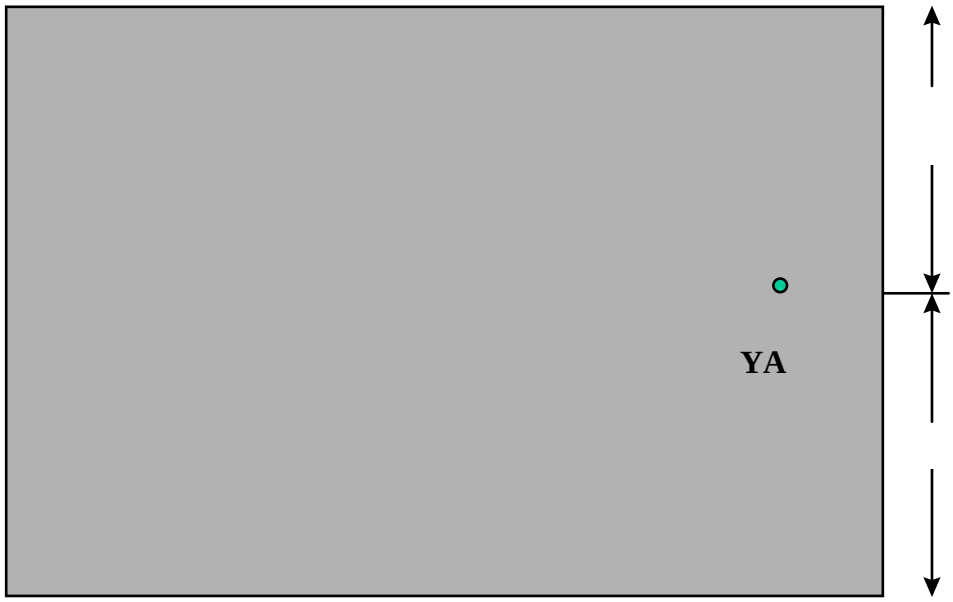
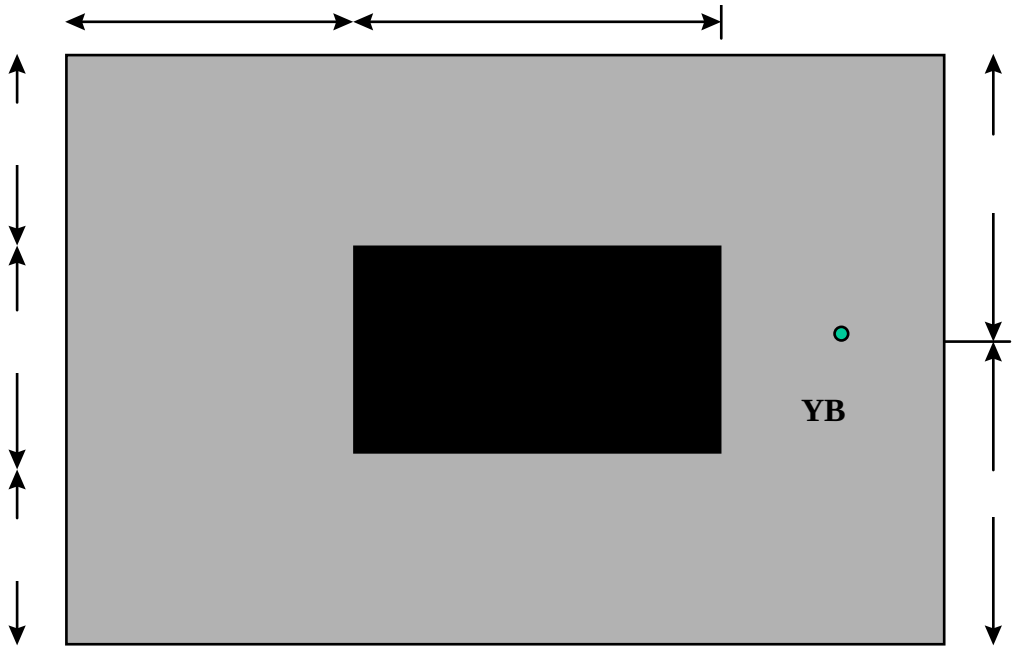
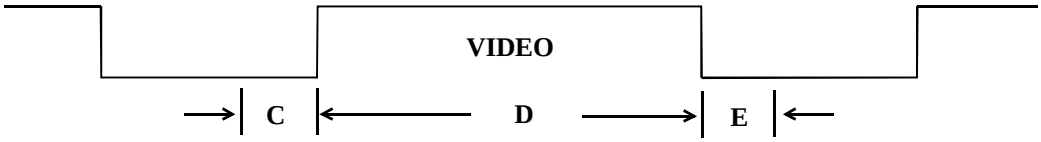


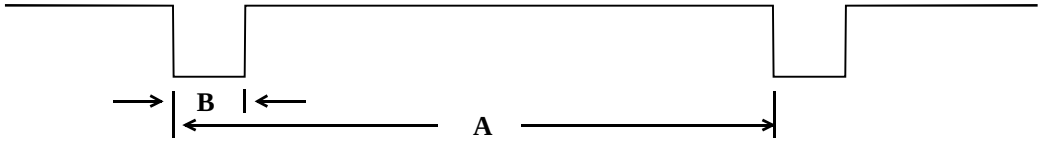
Fig 3: Cross talk Pattern
Center at Gray level 0 (Black)

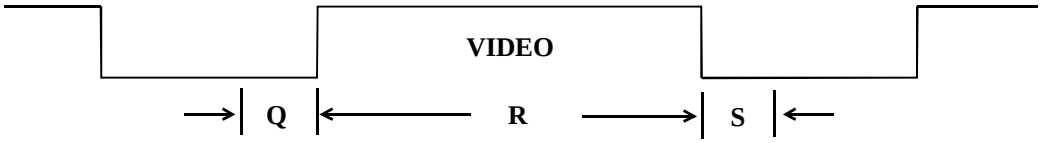


SEPARATE SYNC.

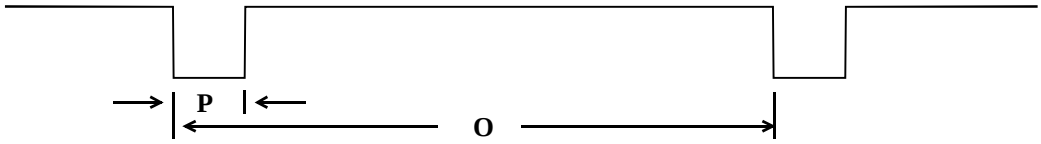


HORIZONTAL

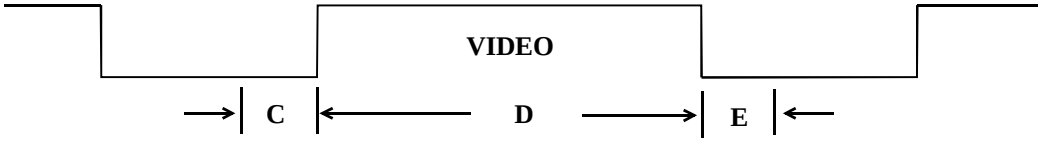




VERTICAL



COMPOSITE SYNC.



HORIZONTAL

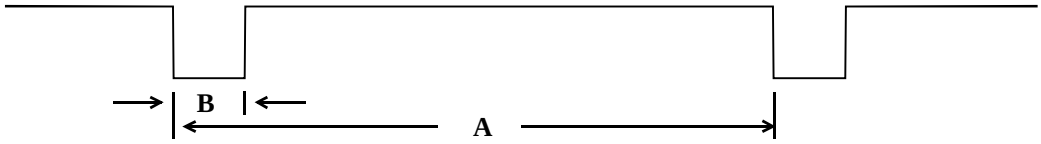
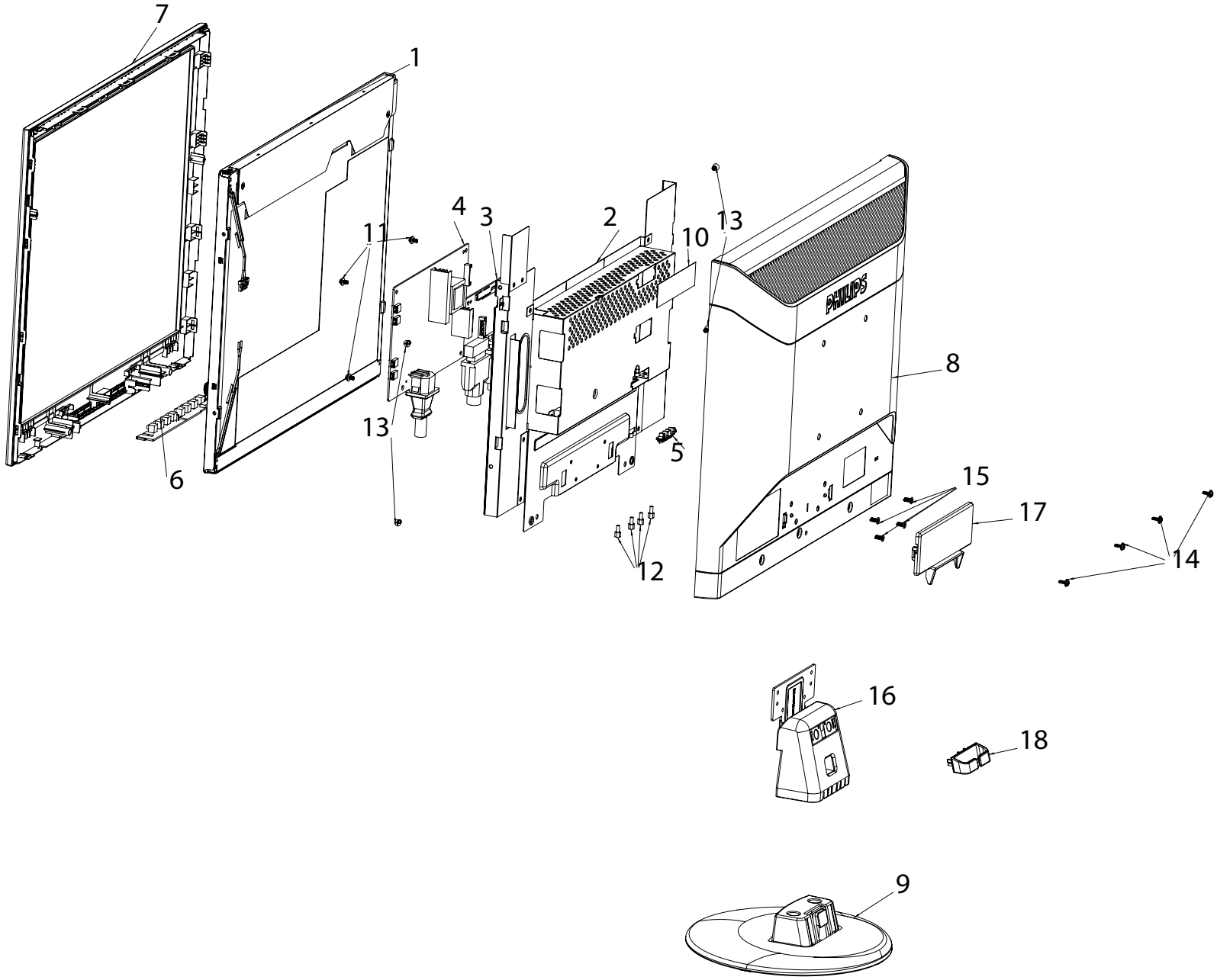


FIG-4 TIMING CHART -1

Exploder Veiw

Type: 190S8 and 190V8



Model: 190S8 and 190V8

Type	Description	QISDA 12NC	Philips 12NC	Location
Accessory	CD MANUAL PHILIPS 190S8	5B.0BR01.001	996510007159	210
	CD MANUAL PHILIPS 190V8	5B.0CU01.001	996520032178	210
	QSG PHILIPS 190S8	4J.0BR01.001		200
	QSG PHILIPS 190V8	4J.0CU01.001		200
Cable	CABLE SIGNAL (D-SUB)	5K.L2H06.501	996510006065	20
	FFC LVDS 30/30P T/B	5K.0BR01.011		19
	POWER CORD 1.8MM UK	2G.03149.021	996510007304	30
	POWER CORD 250V 1.8M EUR	2G.00921.001	996510007306	30
	POWER CORD 250V 1.8M BLK CHINA	2G.04245.001	996510006066	30
	POWER CORD 250V1.8M AUS	2G.01343.001	996510007305	30
	POWER CORD 250V1.8M EUR	2G.00921.001	996510007306	30
Mechanical	BASE ASS'Y	6K.0BQ08.001	996510007129	9
	BEZEL ASS'Y (FRONT CABINET)	6K.0BR01.001	996510007156	7
	BEZEL ASS'Y (FRONT CABINET)	6K.0BR01.011	996510007309	7
	BEZEL ASS'Y (FRONT CABINET)	6K.0BR01.021	996510007414	7
	BEZEL ASS'Y (FRONT CABINET)	6K.0BR01.031	996510007968	7
	BEZEL ASS'Y (FRONT CABINET)	6K.0BR01.041	996510007310	7
	COLUMN ASS'Y	6K.0BR03.001	996510007155	16
	REAR COVER ASS'Y	6K.0BR02.001	996510007154	8
	REAR COVER ASS'Y	6K.0BR02.011	996510007308	8
	REAR COVER ASS'Y	6K.0BR13.001	996510007413	8
	REAR COVER ASS'Y	6K.0BR13.011	996510007967	8
Packing	CARTOON (492*456*175)	4D.0BR01.002		120
	CARTOON (492*456*176)	4D.0BR01.021	996510007412	120
	CUSHION TOP (EPS)	4G.0BR01.001	996510007151	100
	CUSHION BOTTOM (EPS)	4G.0BR02.001	996510007152	110
PCBA	CONTROL BOARD ASS'Y	5E.0BQ03.001	996510007120	6
	MAIN (I/F) BOARD ASS'Y	5E.0BR01.001	996510007150	3
	MAIN (I/F) BOARD ASS'Y	5E.0CU01.011	996510007411	3
	POWER BOARD ASS'Y	5E.0BQ02.001	996510007122	4
TFT	LCDM19 LM190E08 TLL1/4 (LPL)	5F.LL9V9.001	996510007149	1
Component	IC CTRL T68665MFG-128 QFP 128	7A.68665.00E	996510007133	U3
	IC VR G952T65UF T223	7D.95265.03C	996510007134	U5
	FET MOS APM2301AAC-TRL PC 3P	8D.02301.032	996510007135	U6
	IC EEPROM AT24C16AN-10SU-1.8SO	7B.02416.N01	996510007136	U4
	IC EEPROM AT24C02N-10SU-1.8SON	7B.02402.C01	996510007137	U1,U2
	IC PWM CURRENT NCP1203P60G 8P	0D.01203.101	996510007138	IC601
	FET MOS 2SK3530-01MR TO-220F	0F.03530.020	996510007139	Q601
	FET MOS 2SK3702JS NC TO-220	0F.03702.020	996510007140	Q808,Q809
	XFORM PWR ER2828 600U 1908FP	1J.20273.091	996510007141	T601
	XFORM INVERT 450MH EEL19 1908F	1J.26049.041	996510007142	Q801,Q802
	TVS 10D 470V TVR10471KSC3F7SW	2D.50009.031	996510007143	VAR1
	CHIP RES 392 F 1/10W 0603	6D.39205.551	996510007144	R825,R827
	CHIP RES 39.2K F 1/10W 0603	6D.39225.551	996510007145	R812
	IC PWM CTRL OZ9938GN SON-16P	7A.09938.001	996510007146	IC801
	CHIP CAP 470P 50V J0603 NPO	7H.47134.1B1	996510007147	C826
	CHIP BEAD Z30 0.5A HFB1608V	6H.30060.0T7	996510007148	L1,L2,L3

Repair Tips

0. Warning

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance. Keep components and tools also at the same potential !

1. Servicing of SMDs (Surface Mounted Devices)

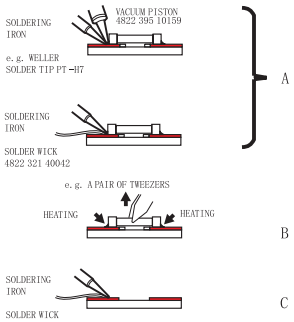
1.1 General cautions on handling and storage

- Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
- Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. The capacitance or resistance value of the SMDs may be affected by this.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2 Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1A)

Fig. 1 DISMOUNTING



While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 1 B).

- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1C).

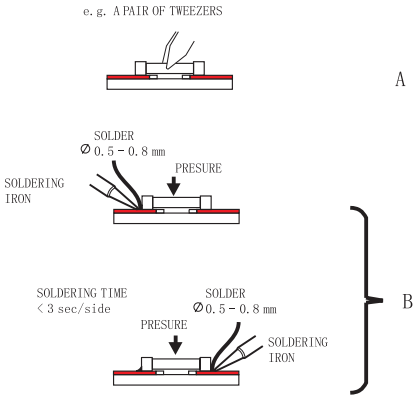
1.3 Caution on removal

- When handling the soldering.iron. use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 C).
- The chip, once removed, must never be reused.

1.4 Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig.2A).
- Next complete the soldering of the terminals of the component (see Fiq. 2B).

Fig. 2 MOUNTING



2. Caution when attaching SMDs

- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible, care must be taken to avoid damage to the terminals of the SMDs themselves.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used, but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 3).

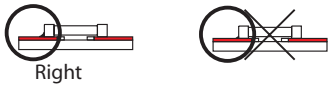
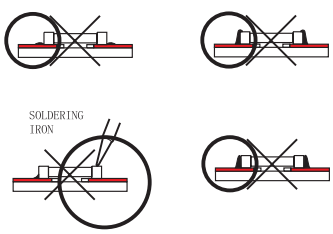


Fig.3 Examples



3. Lead-free product identification

You can identify lead-free product by Philips-lead-free logo on PCB.

4. Lead-free product repair instruction

4.1 Use only lead-free Solder Alloy 0622 149 00106(1.2mm SAC305) or 0622 14900108(1.0mm SAC305).
Remark: For lead free soldering material, please visit www.alphametals.com website for details. This is recommended by Philips.

4.2 Use only adequate solder tools applicable for lead-free soldering-tin. The solder tool must be able to reach at least a solder-temperature of 400 , to stabilize the adjusted temperature at the solder-tip and to exchange solder-tips for different applications.
Small Passives/Actives to be removed with thermal tweezers
Automated system for IC and BGA repair (Microscope, Camera, Beam split optics, Computer, Programmer, Heat controllers, Vacuum system, Laser pointer) Solder Hand-Tool (Adjustable in temperature height, Temperature shall be held constant,Flexible tips)

4.3 Adjust your solder tool so that a temperature around 360 -380 is reached and stabilized at the solder joint.
Heating-time of the solder-joint should not excee d ~ 4 sec. Avoid temperatures above 400 otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed.Corrosion of Tool-Spikes can be avoided when using SAC305 and a temperature of less than 400 .

4.4 Mix of lead-free solder-tin/parts with leaded soldering-tin/parts is possible but not recommended. If not to avoid clean carefully the solder-joint from old tin and re-solder with new tin.

4.5 Use only original spare-parts listed in the Service-Manuals. Standard-material(consumables) can also be purchased at external companies.

4.6 Special information for lead-free BGA-ICs: this ICs will be delivered in so-called dry-packaging to protect the IC against moisture and with lead-free logo on it. This packaging may only be opened shortly before it is used (soldered). Otherwise the body of the IC gets wet inside and during the heating time the structure of the IC will be destroyed due to high (steam-)pressure. If the packaging was opened before usage the IC has to be heated up for some hours (around 90) for drying (Take attention for ESD-protection!)

5. Rework on BGA (Ball Grid Array) ICs

General
Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

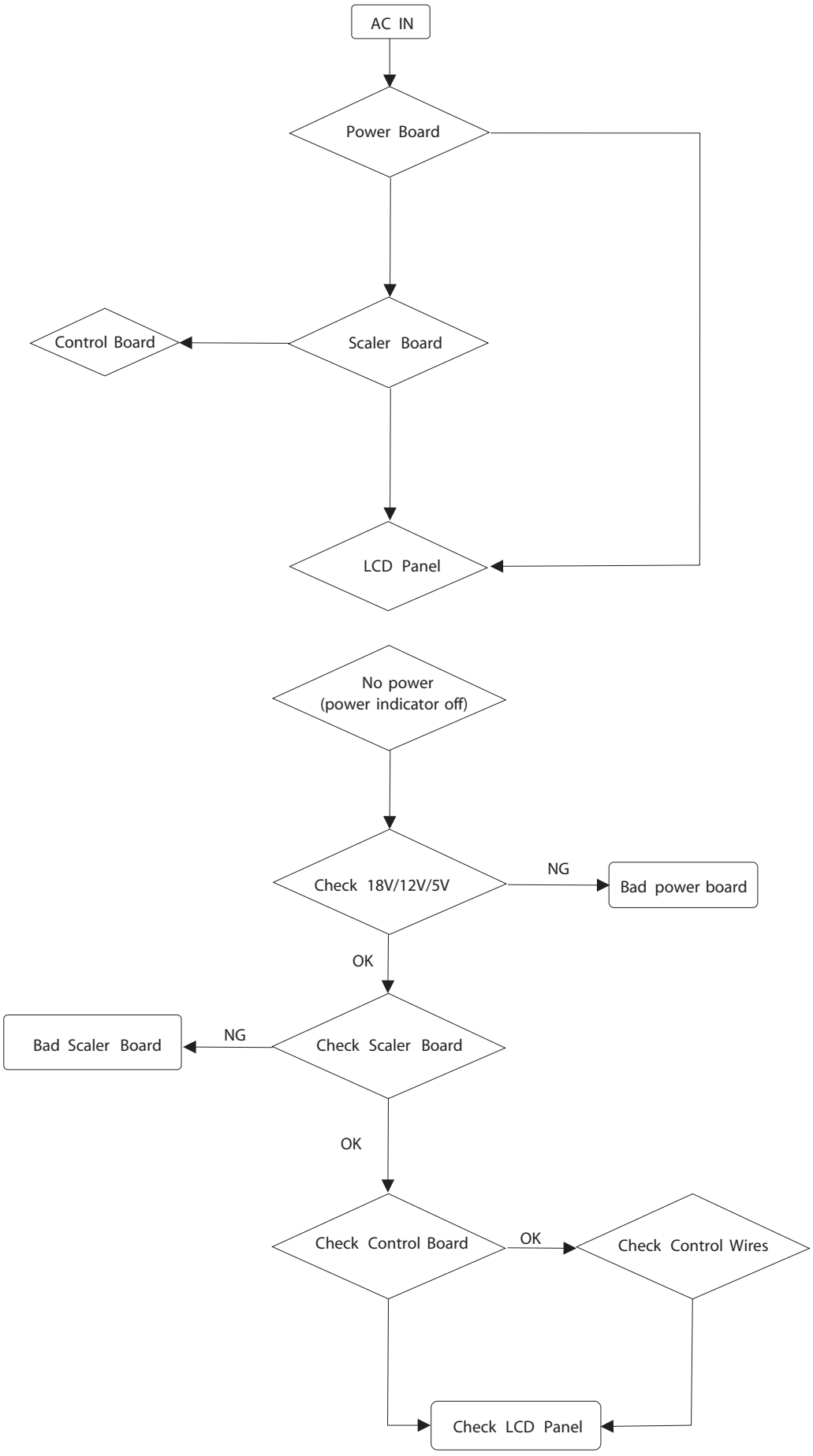
Device Removal
As is the case with any component that, it is essential when removing an (LF)BGA, the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the chance of warping the PWB.
To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area Preparation
When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent. After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the(LF)BGA
Note: Do not apply solder paste, as this has shown to result in problems during re-soldering.

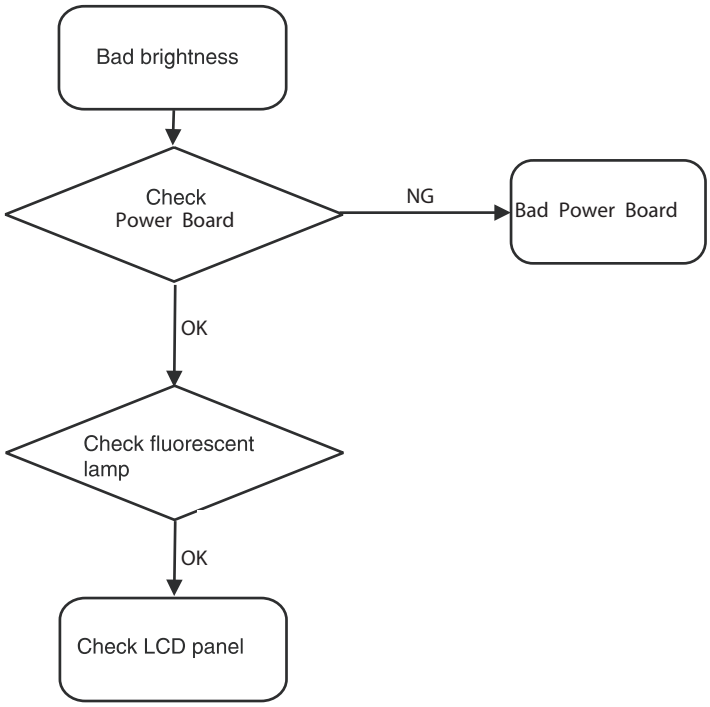
Device Replacement
The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers.
To reflow the solder, apply a temperature profile according to the IC data sheet. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

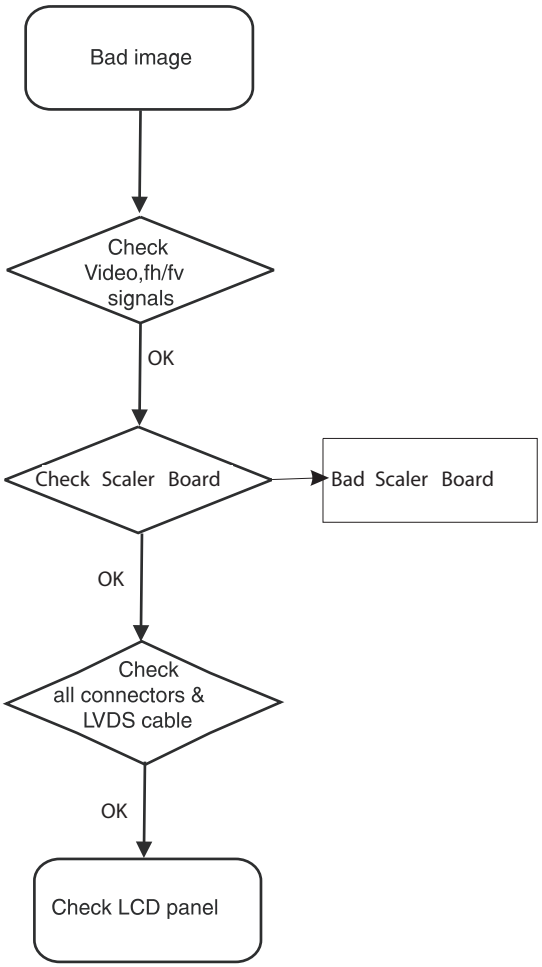
More Information
For more information on how to handle BGA devices, visit this URL: http://wwwatyourservice.ce.philips.com (needs subscription). After login, select Magazine , then go to Workshop Information . Here you will find Information on how .to deal with BGA-ICs.

Repair Flow Chart

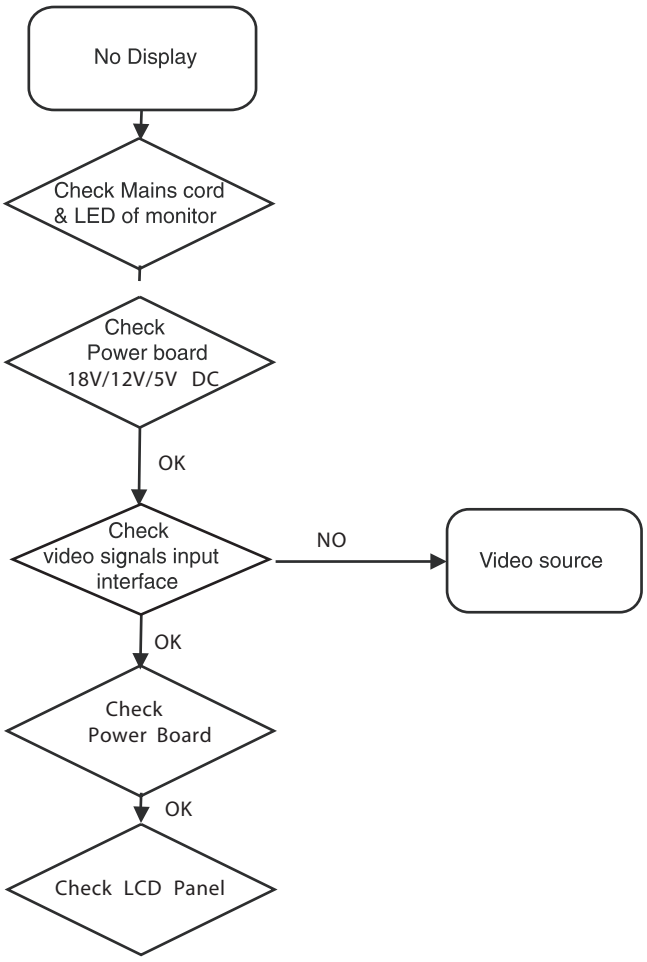


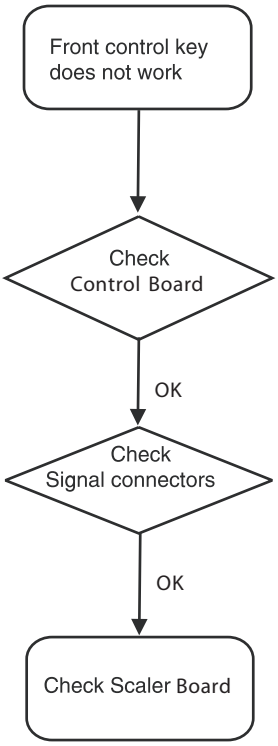
Repair Flow Chart





Repair Flow Chart





All units that are returned for service or repair must pass the original manufactures safety tests. Safety testing requires both Hipot and Ground Continuity testing.

HI-POT TEST INSTRUCTION

1.Application requirements

1.1 All mains operated products must pass the Hi-Pot test as described in this instruction.

1.2 This test must be performed again after the covers have been refitted following the repair , inspection or modification of the product.

2. Test method

2.1 Connecting conditions

2.1.1 The test specified must be applied between the parallel-blade plug of the mainscord and all accessible metal parts of the product.

2.1.2 Before carrying out the test, reliable conductive connections must be ensured and thereafter be maintained throughout the test period.

2.1.3 The mains switch(es) must be in the "ON" position.

2.2 Test Requirements

All products should be HiPot and Ground Continuity tested as follows:

Condition	Hi-Pot Test for products where the mains input is 220V AC	Hi-Pot Test for products where the mains input is 110V AC	Ground Continuity Test requirement
Test voltage	2820VDC (2000VAC)	1700VDC (1200VAC)	Test current: 25A, AC Test time: 3 seconds Resistance required: <=0.09+Rohm, R is the resistance of the mains cord.
Test time	3 seconds	1 seconds	
Trip current (Tester)	Set at 100uA for Max limit; Set at 0.1uA for Min limit.	5mA	
Ramp time (Tester)	Set at 2 seconds		

2.2.1 The minimum test duration for Quality Control Inspector must be 1 minute.

2.2.2 The test voltage must be maintained within the specified voltage + 5%.

2.2.3 There must be no breakdown during the test.

2.2.4 The grounding blade or pin of mains plug must be conducted with accessible metal parts.

3. Equipments and Connection

3.1. Equipments

For example :

- Zentech 9032 PROGRAMMABLE AUT O SAFETY TESTER

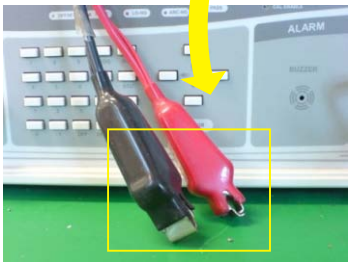
3.2. Connection

* Turn on the power switch of monitor before Hipot and Ground Continuity testing.

(Zentech 9032 tester)

Clip

Connect the clip to the monitor.



Connect the power cord to the monitor.

Power outlet

(Rear view of monitor)

4. Recording

Hipot and Ground Continuity testing records have to be kept for a period of 10 years.